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Psychiatric Disorders and Air Raids

"I'd rather be bombarded than bored". This epigrammatic phrase of British understatement summarizes England's reaction to modern warfare, as reported to American doctors by Sir Robert Dick Gillespie, psychiatric specialist with the British Royal Air Force who has been lecturing in the United States under the auspices of the Salmon Committee on Psychiatry and Mental Hygiene. Idleness and the disorganization of daily life which follow an air raid are worse foes to mental health than fright. Comparatively few psychiatric disorders can be traced to the atmosphere of war. The attendance at London clinics prepared to receive such patients is much less than was anticipated.

There are fewer neurotics in this war, he said, than there were in the last. Surprisingly enough, the war has given birth to two institutions which are highly successful as a preventive of psychoneuroses. They are air raid shelters and community centers. We have learned that shelter life, with its common sharing of danger, has helped people to withstand peril better than isolation in small groups, which often contributes to the development of psychoneuroses. The feeling of being with others during an air raid brings courage. Shelter life and community centers fill a need for companionship and entertainment hitherto unsatisfied.

Almost no air raid fright is observed among children. There are, however, instances of "siren fright". When bomb fright is observed among children, it is generally patterned after the type of adult behavior to which the child has been accustomed. Among adults the threat to life is considered less important than the threat to one's life pattern or the disruption of one's economic setup. Among reaction types noted by Dr. Gillespie are: acute panic (here immobility is often a feature, and the duration may be amazingly short); crystallized fear responses (staring eyes, indifference to neighborhood events, followed perhaps by amnesia); amnesia and malingering.

Mild bomb shock, characterized by subnormal temperature, coldness of extremities and an anxiety state, due to having been exposed to a blast, or from being buried in débris, responded to hot brine baths given immediately, followed by massage, and general ultraviolet irradiation, according to Beaumont of London.

The "shell shock" of the first world war was associated with anxiety, hysteria, malingering and other types of psychological disturbances. In some cases recovery of equilibrium was extremely slow. Today, the term "shell-shock" has mostly been replaced by the condition designated as "blast concussion".

After careful study of many reactions to air raids, H. Crichton-Miller, London, found that the blast effects of compression and suction acting on an elastic abdominal wall probably caused fluids to be violently displaced in the skull. This disturbance damaged the function of the delicate and ill-supported cells of the brain, producing unconsciousness, severe headache, and extreme restlessness. In fatal cases punctate hemorrhages may be found in the meninges and even throughout the brain substance.

However, the symptoms depend, not only on the mechanical factor, but on the physiological state of the patient when the blast hits him. The treatment is absolute rest and withdrawal of all stimulation.

Wounds of the Fingers

Wounds of the fingers are too often regarded as of small account, but in some ways they are quite as dangerous and if treated unskillfully, are as apt to spread infection as wounds on other parts of the body which, because of their size, appear much more likely to be a menace in this direction. Watson Jones, lecturer in orthopedic surgery at the University of Liverpool, is quoted by J. B. Oldham, Surgeon Commander, R.N.V.R. in an article contributed to the *Modern Treatment Year Book,* 1941, as follows: "An open wound of the finger is no less worthy of the skill of an expert surgeon than an open fracture of the femur. There is little difference in the economic value of successful treatment and there may be no difference in the dangers of spread of infection from unsuccessful treatment."

Dr. Oldham takes this as a text for his article and enlarges on it. It is pointed out that the fate of an injured hand is settled once and for all by the medical officer who gives the first treatment. What happens in the first few hours decides whether the finger will be useful or useless during life. Delayed treatment is seri-

ous, improper treatment disastrous. Adequate treatment calls for a high degree of competence, high class surgical facilities and assistance, and unless the medical officer who first sees the case can guarantee these necessities he should do no more than treat shock and give morphine if the pain is severe. Give antitetanus serum (three thousand units) always; antigas gangrene serum should be given if there is much crushing of the tissues. Give 1.5 grams of sulfanilamide in a hot lemon drink, and starting two hours later give 0.5 grams every four hours for four days. Encourage bleeding for a minute or two in order to wash out the depths of the wound. If need be, induce venous congestion by placing a tourniquet round the arm. On no account probe the wound, put in any stitches, irrigate the wound, or try to wash the surrounding skin. Apply a sterile dressing soaked in flavine (1-1000). Immobilize the injured finger and place the arm in a sling. If there is a fracture or dislocation, do not attempt reduction but fix the finger in its deformed position.

The point is that if facilities for adequate treatment are lacking do nothing calculated to render aid, when these facilities are forthcoming, useless or worse than useless. Fussing with such wounds when conditions are unfavorable for proper treatment is contraindicated. Fingers are among the most important parts of a person's anatomy and one of them put out of action permanently will be a serious handicap throughout life. In such cases, to paraphrase an old axiom, "discretion is the better part of surgery".

War Deaths in the First and Second World Wars

Military losses in 1941 were on a scale comparable to those in the first world war, with deaths in the armed forces of all belligerent nations estimated at between 1,250,000 and 1,600,000, or possibly even more, according to statistics calculated by the Metropolitan Life Insurance Company. This estimate compares with 300,000 military deaths in 1939-40 combined.

The total deaths in all the armed forces, from the beginning of the war in 1939 to the end of 1941, will reach at least 1,500,000 to 1,750,000, but may exceed two million. As against this, the total losses from the beginning of the last war to the end of 1916 were in the neighborhood of five million. Only in the last half of 1941 were these losses as heavy as the last war.

The same statistics also give us information about the losses of single countries. The total deaths in the French army, probably between 100,000 and 125,000, is appreciably less than the two hundred thousand deaths in the first half of 1915 alone. In 1940, despite the swift advance of the German forces, the death losses among the British forces on this front were only about ten thousand including those sustained at Dunkirk, while in 1915, British losses on the western front totaled about seventy thousand, and additional losses totaling more than thirty thousand were sustained in the Dardanelles venture alone. In 1941, deaths in the British forces on all the active fronts have probably been fewer than forty thousand, as compared with approximately one hundred and fifty thousand deaths of British soldiers in France and Flanders alone in 1916.

The Polish campaign in 1939 resulted in losses of a little more than ten thousand German soldiers. In the 1915 campaigns 450,000 German soldiers were sacrificed, while Germany's 1940 victories were won at the cost of less than forty thousand, as asserted by the Germans, or of about double that number, as estimated by neutral sources. The campaigns in Greece and Crete in 1941 brought losses of less than six thousand men. The attack on Russia, however, worked a radical change, and at the minimum, it is likely that three hundred to three hundred and fifty thousand German soldiers died in 1941. The actual figure may be as high as six hundred thousand. In 1916, the comparable year of the first world war, three hundred and fifty thousand German soldiers died. Unquestionably, German losses on the eastern front in the last half of 1941 far exceed those on the same front in any six months of the last war.

The deaths in Russia's army in 1941 exceeded probably seven hundred and fifty thousand. During the Finnish campaign in the winter of 1939-1940 the Russians lost fifty thousand soldiers. Italy's military losses have been well below those of the corresponding periods of the last war. In 1940 and 1941 she lost about between forty and seventy thousand men while in the corresponding periods of the first world war she lost one hundred and eighty thousand men.

Extension of the combat areas in 1941, the statisticians found, brought moderately heavy losses to several Balkan countries. It has been estimated that ten thousand Yugoslav soldiers died during the invasion in the spring, but total military losses of Yugoslavia for the year increased considerably as a result of the guerilla fighting in her territories after the collapse of organized resistance. Deaths in the Greek armed forces were in the neighborhood of fifteen thousand. Rumania's losses in 1941 were estimated at more than forty thousand. Small losses were suffered in the armed forces of Hungary, Bulgaria and Iraq, and in their second clash with the Russians, the Finns lost twenty thousand men in 1941.

The active participation of the United States in the War in 1941 was too short to permit valuable conclusions. The same is true for Japan. Japan, however, lost many thousands of men last December alone, whereas during all the last war, down to 1918, her losses in action were trifling—only three hundred men.

The Streptococcal Tendency

It is not the acute diseases which give the most trouble in clinical practice. They are the least perplexing. The diagnosis is almost invariably easy and the treatment is generally obvious. The chronic indispositions and what may be termed "half diseases", with their complex etiology, present the most perplexing problem. They call for insight, intuition perhaps, and certainly experience. The underlying cause is apt to be overshadowed by local symptoms and consequently overlooked, and in spite of temporary relief by the alleviation of symptoms, the indisposition progresses relentlessly and treatment is unsatisfactory and discouraging.

The syndrome of chronic streptococcal infection affords an excellent example of this state of affairs. Dr. J. D. Hindley Smith, who wrote a series of articles dealing with streptococcal infection which were published in the *English Medical Officer*, states boldly that a sufficient clinical investigation will not only prove the existence of a "chronic systemic infection" with streptococci, but will show it in its various stages to be a very common one, and the cause of widespread ill health and suffering.

The investigations by Dr. Hindley Smith were based on a paper by Dr. H. J. Gibson on the bacteriology of rheumatism, in which he discussed hypothetical mechanisms by which the rheumatic response may be produced. He put forward two alternative theories, which appear to fit the observed facts. Either the disease is an infection with streptococcus hemolyticus, and this includes the possibility of chronic systemic infection of a type not now recognized, or some other specific rheumatic agent is the primary cause and the streptococcus is to be regarded as merely one of a number of secondary inciting causes.

Dr. Hindley Smith, as an outcome of his investigations, is convinced that many common diseases and complaints are due to chronic systemic infection by streptococci; for example, tonsillitis, septic sore throat, scarlet fever, bronchitis, bronchopneumonia, septicemia, colitis, appendicitis, cholecystitis, nephritis, impetigo, streptococcal eczema, puerperal fever, and so on. The argument of the writer is that there is a streptococcal tendency in some persons, a susceptibility to infection by this organism, which can be tested by the simple method of taking a throat swab or by more elaborate measures.

The advantage of knowing whether streptococcal susceptibility exists in any given case should be of value. It affords the opportunity of forewarning as to the presence of an inherited tendency in the offspring of streptococcal parents, and of being able to separate pregnant women into two classes, namely, those who are susceptible to streptococcal infection, and therefore of puerperal sepsis, and those who are not. Also, prophylaxis might be established against streptococcal disease. To be able to know who are susceptible to streptococcal infection, which Dr. Hindley Smith says is feasible, would be a step in the right direction. The fight is now in civilized countries largely against chronic diseases and indispositions and the crux of the problem seems to be how best to prevent them. More will be heard in this connection about the streptococcal tendency.

Why Married People Live Longer

Among males in the essentially productive ages of life, the death rate among the single or widowed is about double that among the married, according to statistics for New York State for the years 1929 to 1931. At the age of forty, for instance, the actual rates were 6.08 per 1,000 among the married, 12.84 among the single, and 13.16 among the widowed. Among the females, there was a similar but much smaller differential. At the age of forty, married women had a death rate of 5.34 per 1,000, as against 6.07 among the single and 6.70 among the widowed.

Mortality data of this kind are altogether scanty in the literature. Direct information on the subject is particularly rare. However, a recent report of the Metropolitan Life Insurance Company throws light indirectly on the problem. Among industrial policyholders of the company, tuberculosis accounted for 19.1 percent of all deaths among the single males at ages twenty to forty-four, but only for 11.4 percent of the deaths among the married. It is true that from these figures alone one might surmise that the excess mortality among the single might be due to a species of self-selection, persons afflicted with or predisposed to tuberculosis being thereby restrained, consciously or unconsciously, from marriage. But that this is not the sole reason for the higher mortality among the single is shown by the corresponding figure for the widowed. Among these, the proportion of deaths from tuberculosis is even higher than among the single, namely 23.1 percent. Since these widowed persons had been married at one time, the question of any self-selection against marriage is ruled out in their case.

Alcoholism, particularly among males, is another circumstance which affects very differently the single and widowed, on the one hand, and the married, on the other. The figures for accidents bear out the perhaps natural supposition that persons living alone are more inclined to take serious risks than those who have family attachments. In addition to being more prone to accidental deaths, the widowed are more likely to resort to suicide than the married. Syphilis likewise takes proportionately a much greater toll among the

older groups of the single or widowed than among the married.

It is noteworthy that the important diseases which are largely noninfectious in origin do not show marked differences in the proportions of deaths in favor of the married over the single or widowed. Cancer, the cardiovascular diseases, and nephritis may be cited as examples.

Diet in Relation to Disease

In the treatment of disease, and especially in its prevention, it is known that diet plays a great part, and it is hoped that in the future the incidence of disease will be reduced greatly by diet. It is common knowledge that some diseases, as rickets, beriberi and pellagra, are brought about through the absence from our food of certain essential vitamin elements. When these elements are present in the diet, these maladies do not occur and when they are restored to the food, they are cured.

To the lack of minerals in the food, perhaps, even more than vitamins, many deviations from good health are due. It has been said that if the mineral contents of the body are present in proper proportions, health is good; and when they are lacking, recovery will follow if they are provided. Of course, diet is important in practically all diseases, particularly from the preventive viewpoint, including those brought about by harmful germs. It was found by experiments with mice that skimmed milk conferred a considerable immunity from infection and in some animals increased fertility, while the young gained weight more rapidly and were less liable to die during the first weeks of life. Research in this direction is suggestive. If the results show that by the addition of skimmed milk to the diet the powers of resistance to infection are greatly increased, what effects might whole milk or some other foods produce? The powers of resistance might be enhanced yet more.

The results of these experiments are highly encouraging and give rise to the hope that the day may come when dietitians can provide us with a diet which will enable us to resist successfully all the onslaughts of germ infections.

Today the subject of malnutrition is very much in the public mind. All want to be physically and mentally fit, and it is known that good nutrition is essential for this purpose. It is wrong to imagine that a person suffering from malnutrition must, as a matter of course, go to bed hungry. In the same way a horse may grow fat on grass and be quite unfitted through malnutrition to do hard work. A human being may suffer from malnutrition, though not from hunger. It is the suitability and quality of the food that counts, and the personal equation. What is one man's meat is another man's poison, and climate, occupation, constitution, and temperament all must be considered.

As said before, there are certain elements which if absent from the diet will lead to ill health. On the other hand, it is not well to be faddists with regard to food. Vast sums of money are being spent to raise the health standard of people, and it is of vital importance that those interested or engaged in this attempt, or who are trying to create public opinion with regard to it, should understand the subject and know as far as is known what malnutrition is and why it comes about. Sound health is based on proper nutrition. Experiments with animals to show the results of diet in warding off or curing disease, are of decided value, although it must be borne in mind that an animal is not a human animal. Diet has an influence not only on the body but on the mind, and to gain mental and physical fitness, the keen mind in the alert body, the foundation must be laid by proper food.

The Dilemma of Medical Men Under Forty-Five Years of Age

Recently all men under the age of forty-five were required to register to determine their fitness for service in the war emergency. Physicians and surgeons were not exempt. The medical practitioner under forty-five years of age has yet to be informed as to his status. Will he be "drafted" for military service as a buck private? Will he be given an opportunity of securing a commission in the medical corps? Will he serve five months in basic training with troops before given a commission in his professional capacity?

Many physicians have sought to enter the medical corps of the army or the navy or both, one after the other, without success. The standards of physical fitness seem just a little too high for a man who has been in medical practice for ten or fifteen years. The standards set for physical fitness for a young medical graduate seeking to enter the medical corps of the navy as a permanent career are retained for physicians willing to serve for the duration of the war emergency. The latter do not anticipate remaining in the military services. In most instances, their age precludes them from serving with troops in the field. They will be needed for post hospitals, for recruiting duty, for arsenals, and arm storage dumps. They will release younger career medical officers to duty with troops in the field. An increased tempo of arms production, an enlargement of our already expanded industrial army for war goods, may also require medical officers from a pool of those over age for more active military duty.

The present phase, the lack of information, presents a difficult situation for the civilian practitioner under forty-five years of age. The authorities should clarify the situation *now!*

Papers and Addresses

INFLUENCE OF FORSSMAN ANTIGEN-ANTIBODY COMPLEXES ON THE HEMOLYTIC SYSTEM

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In the course of some titrations to investigate complement-amboceptor relations, a curious phenomenon has attracted our attention. In one of our set-ups, we decided to study the effect, if any, of amboceptor added before and after the initial incubation period. There was no special problem attached outside a certain curiosity to verify whether the hemolysin remained unchanged during the first incubation period or not.

It was with great surprise that we noted that the addition of amboceptor before incubation resulted in a definite fixation of complement in comparison with control tubes, which had received the amboceptor after the incubation period.

In the first titrations, however, we had used antigen also, and our first thought was to incriminate the antigen. So new tests were set without antigen, using hemolysin alone against complement, as for Table I.

From the table, it is evident that the addition of hemolysin before incubation determined fixation of certain amount of complement, about 0.05 in the present case. As an additional precaution, various amounts of hemolysin were used (two units and four units), but in both instances, fixation occurred.

Having excluded the antigen, it seemed logical to us that perhaps that particular brand of complement or hemolysin might have been the cause of the phenomenon.

As a first step, we secured a new supply of complement, pooled from a large number of guinea pigs and dehydrated (by the cryochem process). With this complement, however, we secured the same results; that is, fixation of 0.05 of diluted complement. The results were identical with those secured with previous tests (fresh guinea pig serum or without antigen), so we dispense with presenting the table for this case.

Table I is typical of the results obtained, regardless of the substitution of complement. As to the hemolysin, parallel titrations were set with various brands of amboceptor. For this purpose we used three commercial amboceptors, bought on the market, and three amboceptors prepared in our laboratory. The titers of these hemolysins were all very high, and had given consistent results in serological tests. The setup of the test was carried out according to Table I, so as to compare parallel results. The hemolysin was added always in the same way. In the control tests, hemolysin was added at the end of the incubation period, just before sheep cells, and sheep cells were never sensitized, so as not to add any source of error to the reactions. The results with all these six amboceptors were identical. The addition of hemolysin to complement before incubation invariably resulted in fixation of about 0.05 cc. of complement.

In a second series of experiments, we used an excess of complement against one-half of one unit of hemolysin. In our point of view, we thought it should prove whether destruction affected only complement, or both complement and hemolysin. Given an excess of complement, equaling several units, it was presumed that, if no hemolysin were destroyed, there would not be any difference in the results of the reaction.

Table I

Complement	.1	.15	.2	.25	.3	.35
Hemolysin (two units)	.4	.4	.4	.4	.4	.4
Saline q. s.	1.0	1.0	1.0	1.0	1.0	1.0
Cells	.5	.5	.5	.5	.5	.5
A	x	x	x	—	—	—
B	x	x	—	—	—	—
C	x	x	x	—	—	—
D	x	x	—	—	—	—

A complement, hemolysin and saline incubated one hour at 37° before adding the cells.

B complement and saline incubated together at 37° before adding hemolysin and cells.

Secondary incubation one-half hour at 37° for all.

C is the same as A, except that C has a double amount of hemolysin.

D is the same as B, except that D has a double amount of hemolysin.

x no hemolysis or slight hemolysis; *x* almost complete hemolysis; — complete hemolysis.

From Table II, it is evident that one-half unit of hemolysin is not capable of giving any hemolysis, even in presence of 1 cc. of complement (0.2 cc. being one full unit of complement), when hemolysin is added to complement before incubation. On the other hand, the addition of hemolysin after the first incubation and just before the sheep cells, is followed by full hemolysis at 0.8 and almost complete hemolysis down to 0.6. Conclusively, in the reaction some of the hemolysin had been destroyed, bringing the amount of hemolysin below the safe minimum of one-half unit, as demonstrated by our Table of Reciprocal Relations (Table X). According to this table, as calculated from our experiments, four units of complement will still give

Table II

Complement	.6	.7	.8	.9
Hemolysin	.075	.075	.075	.075
Saline q. s.	1.0	1.0	1.0	1.0
Cells	.5	.5	.5	.5

E complement, hemolysin, saline, incubated together at 37° before adding cells.

F complement and saline incubated together at 37° before adding hemolysin and cells.

Secondary incubation one-half hour at 37°.

E	x	x	x	*x*
F	*x*	*x*	—	—

In this and the following tables, tubes showing complete hemolysis or no hemolysis in all series are deleted for conciseness.

hemolysis in presence of one-half of one unit of hemolysin; but, if hemolysin falls below that margin, further increase of complement will not compensate for any further decrease of hemolysin. In Table II it is evident that destruction of hemolysin has occurred to prevent full hemolysis even with an excess of complement. This was evident also from the fact that when one unit of hemolysin was added to excess complement, destruction of complement was minimal or not very apparent from comparison with controls, on account of possible compensation by the excess complement.

From these preliminary findings, it was argued that an antigen-antibody complex was at work in the reaction between complement and hemolysin. The exclusion of antigens had already focused our attention upon complement or hemolysin itself, and suggested the possibility that we were dealing with Forssman antigen-antibody complexes.

However, before proceeding in our work, we studied the action of heat on hemolysin. Although we had never learned from the literature of any influence of a water bath upon hemolysin, we incubated the various hemolysin dilution separately for one hour, in parallel tubes, and at the end of the incubation we added it to the complement, after which cells were added immediately. As expected, the temperature of 37° C. does not change the hemolysin, and the results were as if we had added hemolysin to control tubes in the usual manner; that is, without incubating it at the temperature of the waterbath. This test was made just to satisfy a legitimate doubt, which might have been aroused, whether temperature and one hour incubation could induce any change in the hemolysin.

Once having established the generality of the phenomenon, we passed to the study of the cause. As a first step, we added diluted and undiluted normal rabbit serum to the reaction, using the same method of study by adding to one set of tubes before, and to another set of control tubes, hemolysin after one hour incubation. The results shown in Table III were striking. Both reaction and control sets, diluted and undiluted normal rabbit serum, showed the same type of reaction, that is, the same fixation of complement, whereas the parallel setup, run as in Table I without normal rabbit serum, showed definite difference of fixation. (This parallel setup is not shown here, being identical with Table I, to which we refer.) This finding established beyond doubt that the reason for the phenomenon was inherent in the rabbit serum, and not in changes undergone by one particular hemolysin during its preparation.

Table III

Complement	.15	.2
Saline q. s.	1.0	1.0
RSU	.1	.1
RSD	.1	.1
Hemolysin (two units)	.4	.4
Cells	.5	.5
A	x	—
B	x	—
C	x	—
D	x	—

RSU, rabbit serum undiluted; RSD, rabbit serum diluted to one percent; all other symbols and dilutions same as in previous tables.

A contains only RSU; RSU, complement and hemolysin are mixed together and incubated for one hour at 37° before adding cells.

B contains only RSU; RSU and complement are mixed together and incubated for one hour before adding hemolysin and cells.

C contains only RSD; RSD, complement and hemolysin are mixed together and incubated for one hour before adding cells.

D contains only RSD; RSD and complement are mixed together and incubated for one hour before adding hemolysin and cells.

The same test was repeated with four units of hemolysin, but results remained unchanged.

Compare this table with Table I.

Having to deal with an antibody-antigen complex, we experimented with the influence of refrigeration fixation, by leaving the tubes for twenty hours in a refrigerator, before adding sheep cells. The results were a more complete fixation in the reaction tubes, because, instead of only 0.05 cc. of complement, as in previous tests, 0.1 cc. of complement was definitely fixed and destroyed by this method. Perhaps this might seem to demonstrate the superiority of refrigeration to incubation at 37° C., but of course, it is not our aim to demonstrate this point of view.

Subsequently, we decided to substitute fresh pooled human serum for guinea pig serum complement, with the idea that perhaps the antigen-antibody complex was due only to interaction between guinea pig serum and rabbit serum. The pooled human serum was diluted according to previous titration 1:5, 0.2 cc. of this dilution being one full unit. The reaction was set up according to Table IV and hemolysin added according to the usual method. The results, of course, were contrary to our expectations, because they showed that human serum, as well as guinea pig serum, contains a large amount of Forssman's complexes and gives strong fixation with rabbit serum hemolysin. In our instances, 0.1 cc. of human complement was destroyed by fixation.

Table IV

HS	.15	.2	.25	.3
Saline	1.0	1.0	1.0	1.0
Hemolysin (two units)	.4	.4	.4	.4
Cells	.5	.5	.5	.5
A	x	x	x	*x*
B	x	*x*	—	—
C	x	x	*x*	—
D	*x*	—	—	—

A: human serum, saline and hemolysin mixed together and incubated for one hour before adding cells.

B: human serum, saline mixed together and incubated for one hour at 37° before adding hemolysin and cells.

C is the same as A, except that hemolysin has been added in amount of four units.

D is the same as B, except that hemolysin has been added in amount of four units.

HS is fresh human serum, pooled and diluted 1:5 and used as complement.

In a second experiment, human serum was inactivated and added to the reaction tubes in the amount of 0.1 cc. of pure serum. (In this test, as in all the successive tests, the human sera were negative and non-anticomplementary). Fixation occurred just the same, but did not occur in the same proportion as when only human complement had been used. It seemed as if guinea pig serum were acting as protective for human serum and preventing a much stronger fixation. For this effect, Table V (A, B) should be compared with Table IV. By running parallel tests without human

serum, we could appreciate the importance of human hemolysin, as we shall have opportunity to refer later. In order to demonstrate the protective action of guinea pig complement upon human serum, we followed the order of Table V (C, D) that is, we incubated complement in one tube by itself and inactivated human serum and hemolysin together in another tube. At the end of the incubation period, the contents of the two tubes were mixed and sheep cells immediately added. Parallel controls were set up, with complement mixed with human serum and hemolysin before incubation, and then incubated together. The results of the test demonstrated very clearly that when human serum was incubated apart with hemolysin and then, at the end of incubation added to complement, fixation was much

Table V

Complement	.15	.2
Saline q. s.	1.1	1.0
HS	.1	.1
Hemolysin (two units)	.4	.4
Cells	.5	.5
A	x	—
B	—	—
C	x	—
D	x	—
E	x	—
F	—	—

A: complement, human serum and hemolysin mixed together and incubated for one hour before adding cells.

B: complement, human serum mixed together and incubated for one hour at 37° before adding hemolysin and cells.

C: complement and saline have been incubated apart in separate tubes; human serum and hemolysin have been mixed together and incubated at the same time. After one hour incubation the two tubes have been mixed together and cells added.

D: complement, saline, hemolysin and human serum have been mixed together and incubated for one hour at 37° before adding the cells.

HS is inactivated, pooled human serum. .1 cc. contains about two units of natural hemolysin.

E contains human serum HS, inactivated at 56°. F does not contain human serum. No previous incubation. The various components of the reaction, as specified, are mixed together and incubated for one-half hour, after which hemolysis is read for both tubes.

stronger than when all the various elements of the reaction were mixed together. The results were essentially the same as those noted in Table IV, where human serum has been used as complement. The evidence that guinea pig serum has a definite protective action on the human serum may be drawn by referring to Table V, showing the kind of fixation obtained by guinea pig and human serum combined.

To see whether the complex might have any effect upon the reaction of Wassermann, some titrations were run in parallel, without and with human serum. In one instance, as the table shows, without previous incubation, there has been definite fixation of complement in the one-half hour hemolysis time. The table shows that the probabilities that such complexes might affect the reaction are far from remote and should be borne in mind. Of course, in running these tests, one must take into consideration also the presence of natural human hemolysin, that may counterbalance somewhat the course of the fixation.

Finally it was decided to apply the technique of Davidsohn for the extraction of the Forssman antibodies from both human and rabbit serum. Guinea pig kidneys were used for their absorption. The experiment was set according to Table VI, which merely represents previous experiments, save that hemolysin had been deprived of Forssman antibodies. In the reac-

Table VI

Complement	.15	.2
Saline q. s.	1.0	1.0
HF (two units)	.4	.4
Cells	.5	.5
A	x	—
B	x	—

A: complement, saline and hemolysin deprived of Forssman antibodies by Davidsohn method are mixed together and incubated for one hour at 37° before adding the cells.

B: complement and saline are mixed together and incubated for one hour at 37° before adding hemolysin deprived of Forssman antibodies by Davidsohn's method and cells.

HF is rabbit hemolysin deprived of Forssman's antibodies by guinea pig kidneys, according to technique of Davidsohn.

tion, as well as in the control, the amount of complement needed is the same; that is, there was no fixation of complement. In a second set, in which human serum, already deprived of Forssman complexes, was added to the test, as sketched in Table VI, the results were the same; there was no fixation.

In another set of tubes, human serum deprived of Forssman complexes by Davidsohn's method, was incubated with fresh rabbit amboceptor (untreated)

Table VII

HS	.3	.4
Saline	1.0	1.0
Complement	.3	.3
Cells	.5	.5

In A—HS inactivated human serum.

In B—HS inactivated human serum deprived of Forssman's antibodies by Davidsohn's method. This test is to show the amount of natural hemolysin present in the human serum. The various components were all mixed together without previous incubation. Hemolysis was read after one-half hour.

while complement was incubated separately, in order to avoid fixation between it and the amboceptor, the results were also very evident. There was no fixation of complement in any amount. The control set as in Tables I and V, gave fixation as usual.

These last experiments gave the incontrovertible proof that the phenomenon was entirely due to the presence of Forssman's antibodies and that elimination of them from either the human serum or the ambo-

Table VIII

HS	.1	.15	.2	.25	.3	.35	.4
Saline q. s.	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Complement	.3	.3	.3	.3	.35	.3	.3
Hemolysin (half unit)	.1	.1	.1	.1	.1	.1	.1
Cells	.5	.5	.5	.5	.5	.5	.5
A	—	—	—	—	—	—	—
B	x	x	x	x	x	x	x

In A—HS inactivated human serum. In B—HS inactivated human serum deprived of Forssman's antibodies by Davidsohn's method. Hemolysin readings of A were prompt after fifteen minutes.

ceptor caused the phenomenon to disappear. However, two more points remained to be solved, namely, whether human hemolysin were a Forssman's antibody and whether acquired rabbit hemolysin had any link with Forssman antibodies.

To solve the problem of human hemolysin, we at first determined the content of hemolytic units in in-

activated human serum. In normal serum, as it appears from Table VII, 0.4 cc. of human serum contains scarcely one unit of hemolysin, because hemolysis is not complete. The serum, deprived of Forssman antibodies by the Davidsohn's method showed no hemolysis in any tubes. But we had observed, in many instances, that human serum hemolysin had a strongly synergistic action, when minimal amounts of acquired hemolysin are added to the test. So, in order to prove the point and see whether serum deprived of Forssman antigen

Table IX

Complement	.4	.5
Saline q.s.	1.0	1.0
Hemolysin (one unit)	.15	.15
Cells	.5	.5
A	—	—
B	.r	—

In B, HF is rabbit hemolysin deprived of Forssman's antibodies by Davidsohn's method.

In A, hemolysis is untreated.

The test has been carried out with just one unit of hemolysin and an excess of complement, in order to detect destruction of small amounts of hemolysin by the Davidsohn method. No previous incubation. All the components have been mixed together and hemolysis read after one-half hour.

The table shows that there are no appreciable differences between untreated and treated hemolysin and that acquired hemolysin is not a Forssman's antibody.

would show synergistic action, though apparently unable to produce hemolysis, we set the test, as in Table VIII, by adding to each one of the sets one-half unit of rabbit hemolysin. As we see from Table VIII, the titre of human hemolysin rapidly increased, because full hemolysis was already shown in the first tube with scarcely 0.1 cc. as against 0.4 cc. of the previous test of Table VII. In this case, we see that 0.1 cc. containing less than one-fourth of hemolysin unit, was capable of producing hemolysis in the presence of only one-half unit of acquired hemolysin. In the test containing human serum deprived of Forssman complexes, the addition of one-half unit of hemolysin had no effect whatever; there was no hemolysis in any of the tubes. This showed that the treatment with guinea pig kidney had removed all the Forssman complexes and evidently also the natural hemolysin, whose Forssman nature was thus demonstrated. We may add at this point that in the first test with untreated human serum, readings were very prompt after fifteen minutes.

Table X: Curve of Reciprocal Relations

Complement	4	(3)	3	(2)	1	¾	½
Hemolysin	½	(½)	¾	(¾)	1	10 (8)	15 (12)

In a final test, we employed one unit of hemolysin in the presence of an excess of complement. To one set of tubes was added fresh hemolysin; to the other, hemolysin treated with guinea pig kidneys. The results were clear; hemolysis stopped in the same corresponding tubes of parallel tests, with possibly only a light shade of cells in the tubes containing hemolysin treated with guinea pig kidney. It was evident from this that the acquired hemolysin was a Forssman phenomenon and was not eliminated by treatment with guinea pig kidneys, as in the case of human hemolysin. To understand better the reasons of our titrations with excess complement, we add that, in our curves between complement and hemolysin, we found the relations shown in Table X.

Hemolysis will be complete, with these amounts of complement and hemolysin units. With less than one-half unit of either complement or hemolysin, the reaction is not possible. The numbers in parenthesis show that hemolysis has occasionally taken place with those amounts. This may indicate that a small amount of natural hemolysin may be present in the complement, and account for these little differences between the various samples. These results are taken from a very large number of titrations and have been repeatedly constant. However, to show the differences of our data from those of Ronchese, we add for comparison the table of this author:

Table of Ronchese

Complement	3	2	1	½	1/3	1/5
Hemolysin	1/3	½	1	2	3	8

Our results were definitely different from those of the French author, and since we have no explanation, we offer the two tables for comparison.

Comment

Fairbrother, studying the various false positive reactions, attributed them to insufficient heat of inactivation and proposed heating the serum at 58° to 65°, in order to eliminate fixation of complement by greatest concentration of serum in the presence of antigen. At this point he makes a curious remark which we quote textually: "It has been suggested that the natural anti-sheep hemolysin is the main responsible factor. If this were true, it would indicate fixation of the complement during initial incubation by hemolysin alone rather than by antigen-serum combination." This author and his associates discarded *a priori,* a probability, which, had they attempted to eliminate by more sound experimentation, would have given them the opportunity to demonstrate the truth that fixation of complement does take place just as well in the presence of hemolysin as of antigen-serum combinations. If we had imitated these authors by rejecting a priori, the possibility of fixation without antigen, we would have missed the demonstration of this phenomenon.

In the vast literature of Forssman's complexes, we have noted the continuous endeavor of authors to follow the same trend as Fairbrother, that is, to believe that fixation takes place only in the presence of antigen-serum combinations. It has not occurred to other authors that antigen may already be present in the serums under experiment, and that further addition of artificial antigen, is entirely unnecessary.

Perhaps some of the best works on the demonstration of Forssman's antigen-antibody complexes has been carried out by the Moscow school of Kritschewski. Kritschewski recurs to the use of alcoholic Forssman antigen. He believes that there are rabbits containing antibodies which fix complement in presence of antigen (sheep cells Forssman antigen). Friede and Grunbaum immunized rabbits with guinea pig kidneys and concluded that rabbits do not possess antigen.

Friedemann divides the animals in two groups: (a) having no hemolysin or isophile homologous amboceptor; (b) having heterophile sheep amboceptor. Rubenstein experimented on hemolytic properties of dogs, cats, rats, and rabbits against erythrocytes of various species, by using one hour incubation, with no initial incubation. He disproves the contention of Friedemann that there is no antagonism between heterogenous

Forssman's antigen in the organs and in the serum. The distribution of antigen-antibody does not follow the Forssman's law. He concludes that rabbit does not possess any of the four antigens (sheep, turtle, hen, cat), but has some Forssman type hemolysin.

Another important contribution to the subject is the work of Taniguchi. This author shows that heat destroys heterophile hemolysin in rabbit serum, and that lipoids appear to be an essential constituent of the receptors of sheep corpuscles concerned in heterophile antiserum hemolysin, whereas those acted upon by isophile immune body are supposed to be of proteic nature. The sheep corpuscles fix far larger multiple hemolytic doses of sheep lysin of the heterophile type, or to put it into serological wording, antigen fixes more complement. He concludes that guinea pig serum contains small amounts of antigen, which may be extracted and intensified by cholesterol, and admitted the property of rabbit sera to fix complement along with lipoid antigen, distinct from Wassermann, and being soluble in alcohol and ether, and insoluble in acetone.

Collier demonstrated Forssman's antibodies, by using a high cholesterolized alcohol extract and employing flocculation and clarification.

Elsberg, in a good and significant study of the importance of Forssman's antigen in the dermatological field, states that in degenerated tissues lipoids are liberated which cause formation of antibodies. He seems to believe that even the Wassermann reaction may fall under the group of Forssman reaction, because the reagins of syphilis are antibodies directed against lipoids of the organisms and these reactive substances pass from tissues to blood. However, he too, recurs to the use of antigens to demonstrate Forssman's antibodies.

Schiff, and later, Davidsohn, demonstrated that the heterophile A, present in blood serum, type A, has common receptors with the Forssman's antigen in sheep blood, but is not identical with it. Friede found heterophile antigen of sheep and chicken corpuscles, also in the erythrocytes of tortoise and kidneys of horses, guinea pigs, fowls and cats. Krah and Witebski, however, showed that red corpuscles contain Forssman's antigen, but the antisheep serum obtained by injecting blood serum, type A, does not influence human blood without receptor A.

Passing to a study of the reciprocal relation of complement and hemolysin, we do not share the opinion of Koopman and Falker, who concluded that excess of hemolysin does not compensate quantitatively for a lack of complement and that excess of complement does not compensate for a lack of hemolysin. We have demonstrated in Table X that there is definite and almost constant compensation within certain limits.

Our opinion that occasionally the complement contains a small amount of hemolysin, which may explain the slight differences occasionally observed, is substantiated also by Gahl, who states that complement will replace minimum amounts of hemolysin, because every complement contains traces of various amboceptors.

As to the hemolysins, various views are held. One admits that isophile hemolysin is of proteic nature, whereas heterophile hemolysin is of a lipoid nature, and would be more heat stable than the acquired isophile hemolysin. Scaffidi tries to show that the hemolysin is of proteic nature, and Coulter states that hemolysin is destroyed by alcoholic extraction.

Some years ago, Weinberg and Barotte showed the existence of synergistic action of antibodies. They demonstrated this action in their studies upon antiperfringens serum, but stated that the phenomenon may be rather general and applies to many other biological reactions. In our experiments, we have shown the strong synergistic action between the weak natural human antisheep hemolysin and a fraction of one unit of a strong isophile rabbit hemolysin. We cannot overemphasize it for the possible applications and influences that such synergism may have upon the course of the Wassermann reaction. It seems to us that perhaps the point of attack of natural heterophile hemolysin and acquired isophile hemolysin upon the erythrocyte is different and that, of course, the weak attack of human hemolysin is reinforced by the attack of the other hemolysin upon a different point of the erythrocyte surface, thus producing a more prompt lysis. Fuchs admits that the complement influence depends upon the grade of sensitization of the red corpuscles. It may be that human hemolysin may serve to sensitize the erythrocyte or enhance its sensitization, so that lysis may be produced quicker and with a minimum amount of isophile hemolysin. Immune complexes concentrate, according to Levine, at interfaces in spherical or spheroid configurations. If now the attack of two weak different hemolysins is at different points of the spheroid, the stroma of the cells may yield more promptly than if a strong pressure had been exercised at only one point. The elasticity of the membrane may support a strong pressure at one point, but give away when such pressure, even if less intense, is covering a larger surface of the spheroid.

In a last analysis, we have not tried to differentiate whether the antigen or the antibody is the cause of this phenomenon. It seems to us that there is such a continuous interaction of antigen and antibodies, that it would be hardly possible to differentiate between the two. We agree with the point of view held by Taoka that antigen and antibodies are frequently structurally related, if not identical, and that we are dealing only with circulating antigen-antibody complexes.

Summary and Conclusions

We have observed a curious phenomenon of hemolysin-complement fixation without the presence of antigen. This phenomenon appears to be general between guinea pig serum and rabbit serum and between human serum and rabbit serum. Previous authors have failed to observe the phenomenon, because of their obstinate belief that fixation must occur only in presence of an antigen and have discarded the idea that antigen is actually present in the serums.

This phenomenon has been analyzed and found to be of heterophile nature. When serums have been treated with guinea pig kidney and Forssman antibodies extracted by this method, the phenomenon failed to reproduce. Complement has a protective influence upon human serum-rabbit serum. Human serum contains antisheep hemolysin, which is an interaction, entirely of heterophile nature, and is completely eliminated or destroyed by treating the serum with guinea pig kidney. Human hemolysin has a very pronounced syner-

gistic action, when minimal amounts of isophile hemolysin are added to it.

Rabbit isophile hemolysin is not of Forssman nature and is not extracted by treatment with guinea pig kidneys.

The literature has been examined, but no previous mention of this phenomenon has been found.

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METHYLENE BLUE DECOLORIZATION TEST FOR CARCINOMA

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Up to the present time no satisfactory functional test for carcinoma has been devised. In 1933, I reported research studies in which methylene blue was used to detect early carcinoma in the body. Only recently by European workers has this methylene blue test been verified (1, 2, 3, 4). Serious attention should be given to the body fluids as the urine, blood, gastric juices, etc., to discover therein some abnormal degradation products which are specific to carcinoma, and that would aid early diagnosis of cancer.

In my 1933 studies I reported as follows (1, 2): Under normal conditions, the urine contains almost the entire amount of the end-products of protein metabolism, urea being the most important constituent, and it is in this form that almost all of the nitrogen of the body is eliminated. A large proportion of the excess of mineral constituents is also excreted by this path. In pathological deviations of the protein metabolism, as occurs, for instance, in carcinoma, characteristic changes of a qualitative or quantitative nature occur in the bodies excreted in the urine. In cancer, there is a toxic destruction of protein, mostly the result of some fault in the enzyme systems of the affected cells. Faulty catabolism of protein along abnormal paths occur through other enzymes, atypical, ferments, etc., which lead to an unbalanced nitrogen equilibrium, and a change in the picture of the normal urinary and blood constituents.

The general observation holds true that, in spite of diligent search, only a very small number of specific bodies, synthesized in disease only, and not constituents of normal tissues, have been found. Certain pathogenic bacteria in the body, such as the bacilli of tetanus, diphtheria, gas gangrene, etc., produce soluble toxins that may be taken as examples of the power of the body to produce, in disease, substances which are not found in the normal body, and which, to a greater or lesser extent, are specific. Contrary to all texts, bacteriology and biochemistry, the socalled bacterial toxins that produce disease are not inherent in the bacterial bodies but arise solely as a result of their endo-enzyme and exo-enzyme acting upon specific body tissues which they are capable of decomposing into toxic products (bacterial toxins) the toxicity of which is responsible for the symptoms of the disease (6). One or two examples, for illustrative purposes, may be mentioned here.

The bacillus of gas gangrene contains no endotoxin or exotoxin. This germ, however, through its enzyme system, is capable of decomposing especially the muscle amino acid glycine $C_2H_5NO_2$, to result in CO_2, and the toxic gaseous amine—methylamine CH_5N—both of which are mainly responsible for the distention of

the body tissues in the vicinity of the infection and the toxemia. This decarboxylation of the amino acids within the body, by enzymes of infective organisms, is, apparently, of common occurrence though such splitting off of CO_2 was not suspected as occurring in human or animal biochemistry. For instance, in a tetanus infection, one of several toxins of tetanus infections is tetanotoxin $C_5H_{11}N$. This results from the decarboxylation of leuceine, $C_6H_{11}NO_2$, in which CO_2 is split off, the resultant toxin—tetanotoxin—being one of the most deadly known. This enzymic decomposition of specific nerve tissues by neurotropic organisms as tetanus, rabies, poliomyelitis, etc., would readily explain the manner of progressive toxin formation upward in nerve tissue, and the manner by which the toxins later appear in the central nervous system and brain to manifest themselves in the symptoms peculiar to each disease. This being the case, antitoxins, antibodies, etc., are merely antienzymes, and enzyme-inactivating agents, exerting their effects by preventing further toxigenic enzymosis. Similarly bacteriophages (viruses) are produced from specific protein breakdown by the action of bacterial enzymes and such bacteria-made viruses, enzymically, eventually cause the destruction of the agents responsible for their production.

Urine and certain other body fluids eliminate various endo-antigens, exo-antigens, hormones, enzymes ferments, etc., and, in malignant disease, specific substances, but, oddly enough, such substances have not been put to any diagnostic use. In certain cancers within the body, there can be recovered from the urine at least one substance peculiar to malignancy. This substance remains at present unidentified, but the chemical formula has been empirically determined to be $C_7H_8NO_2$. It can be recovered in crystallized form, and most likely is derived from the amino acid tryptophane by some peculiar cancer-enzymic decomposition. This cancer toxin (?) in the urine, evidently plays a major rôle in the toxemia, cachexia and the ultimate cause of death in carcinoma. Recent research shows that there is a marked disturbance in tryptophane metabolism of cancer tissue. This can be noted by the increased amount of indigo found in the blood stream of such patients. The precursor of body indigo is this amino acid which, incidentally, is responsible for several toxic substances when improperly metabolized.

In my article published in 1933, a new form of carcinotherapy was instituted on the theory that the urine of cancer subjects contains an anticarcinogenic factor (1, 2). Knowing that the rectum has great resorptive capacity, and that any material absorbed from the rectal mucosa passes directly into the systemic circulation by way of the hemorrhoidal plexus, hypogastric vein and vena cava without passing through the liver, a form of autourotherapy was instituted. The technique was as follows: twenty cc. of the patient's urine was injected as a rectal enema, being retained, and the daily amount of such rectal injections being increased until about sixty cc. could be comfortably retained. Care was taken not to treat such patients if tuberculosis or gonorrhea was also suspected, for fear of infecting the rectum. The urine was not sterilized by heat as the active growth-inhibiting agent (enzyme?) appeared then to be destroyed. If the urine was of high specific gravity and/or contained excessive sediment, it was discarded. Favorable effects were noted with the autourotherapy, the pain and discharge lessened, and the growth actually appeared inhibited, and often regressed. No ill effects were encountered and the patients noted a general feeling of well being. It was observed that following the urine injections, a mild diuresis would occur, also a lowering of the blood pressure through some unidentified hypotensive agent that is present in urine. In two cases, the blood sugar was also reduced. (It was suggested at the time that extensive studies should be carried on on those subjects in which the ureters were transplanted into the lower bowel. In such states certain constituents of the urine are constantly being similarly re-absorbed into the system.) Among one of the beneficial agents, in urine, is urea which is known to exert a healing effect on indolent ulcers, and also stimulates epithelial growth and new tissue.

In some of the cases thus treated, three to five grains of methylene blue, in aqueous solution, was injected into the rectum every other day, replacing the urine injection. It was observed that the blue urine passed by these subjects, when allowed to remain in test tubes, would shortly undergo decoloration, the normal amber hue first becoming evident in the bottom of the tubes, and progressively decolorizing until only a faint show of blue was noted at the top of the fluid. Tests of the "malignant urine" showed that the loss of the blue color from the urine was not due to bacterial ammoniacal fermentation but was due apparently to a reducase (reducing enzyme) present in cancer urine. (Such an enzyme may be present in cancer tissue, but if it is the result of some deranged enzyme, or results from faulty metabolism of protein tissue, I cannot say.) Should an oxidizing agent—such as hydrogen peroxide be added to urine in which the methylene blue underwent reduction—the blue color would immediately return. Methylene blue is an excellent detoxicating agent with oxido-reducing actions. It, like the sulfonamides, is not bactericidal but exerts its effects by inhibiting and reducing bacterial toxigenetic enzymoses which is the ultimate cause of toxin production and disease. (As methylene blue has marked detoxicating properties, it would be indicated in combating or modifying the toxicoses not only of malignancy, but also of diabetes, uremia, etc.)

It should be stated that the above mentioned blue decoloration does not occur in the same manner when added directly to the urine of cancer subjects. Apparently this dye comes in contact with certain hormones and/or toxic degradation products, atypical enzymes, etc., that are present in the system. A misleading reaction may occur in pregnancy and the blue color may similarly fade. This may be explained that both a cancer and a fetus are new growths within the body—the former a pathological growth, the latter a physiological tumor. Probably both require the same growth-promoting hormone, or substance essential to such growths. The malignant tumor may stimulate the anterior pituitary gland, etc. to increase an hormone, the excess of all of it being discarded from the body by way of the kidneys.

Within the last few months some interesting reports have appeared in American and European literature more or less pertaining to the subject discussed herein. Sandweiss, Friedman, et al. (7) have recently used

urine extracts in the treatment of peptic ulcers. They found that these extracts caused stimulation of fibroblastic and epithelial proliferation, and the formation of new blood vessels. (Probably these extracts are not urea-free which gives similar results.) These workers found urine also to contain a substance which acts as a gastrosecretory depressant.

Others have recently announced the recovery from urine of a hypotensive agent, and the enzyme tyrosinase which is heralded as an agent for hypertension. Tyrosinase should not be prescribed indiscriminately, and is of no benefit whatsoever in the hypertension of arteriosclerosis. No explanation is offered as to how tyrosinase is able to cause a reduction in blood pressure. Could it not be that this enzyme inactivates tyramine a toxic agent derived from tyrosine by decarboxylation and splitting off CO_2? Tyramine exerts definite hypertensive effects, and causes arteriole constriction. It will also produce gangrene. Its effect in the system closely resembles ergot which is derived from ergot of rye by fungus enzymic-decomposition of its tyrosine content. Tyramine and similar gangrene-producing agents are found in certain plants, organic matter, etc., and may prove to be a major factor in the gangrene of leprosy. Future studies may show that the lepra bacillus (more correctly the lepra fungus), through its enzyme, is capable of breaking down such body amino acids as thyrosine, phenylalanine, etc., to produce tyramine and similar vasoconstriction and gangrenogenic substances which manifest themselves in the symptoms of this disease. (Some other diseases, such as Raynaud's disease, etc., may be the result of faulty metabolism in the body of these two amino acids.) The enzyme, tyrosinase, will prevent the breakdown of tyrosine to tyramine, oxidizing it to such substances as melanin, etc. (This is likened to the enzyme histaminase which prevents histidine breakdown, and also will inactivate histamine.) Apparently tyrosinase therapy could only be of benefit in hypotension due to tyramine (renin?).

Addendum

Since completing this article my attention has been directed to an interesting report just announced in Madrid, Spain. R. Chamorro and R. S. Salinas, in the *Revista Clinica Espanola,* Madrid, August 1941, abstracted in the *J.A.M.A.,* January 1942, announce the use of methylene blue as a newly discovered test for gastric cancer, and regard it as a specific for carcinoma. Their test, like the one I described in 1933, also depends upon the methylene blue decolorization. They describe their test as follows: The fasting stomach is evacuated by means of Einhorn's tube. There is then introduced through the tube 250 cc. of a five percent alcoholic solution to which has been added several drops of a one percent solution of methylene blue. Thereafter, every fifteen minutes, specimens of gastric fluid are placed in test tubes and observed. In gastric carcinoma, the intensity of the coloration of the gastric fluid persists for twenty-four hours and more, and is independent of the gastric acidity. In the presence of gastric cancer an ascending decoloration is observed in the test tubes; and at the end of an hour become completely colorless, or, at the most, shows a thin blue ring at the upper rim. This metachromatic decoloration has no connection with acidity, the presence of organic acids, or blood, and is considered a test specific for cancer. However, they offer no explanation as to the probable causes of the color change.

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AUTHOR'S NOTE: In ancient and modern times various forms of urotherapy have been used (8, 9). In Armenia and some of the Slavic countries urine was taken internally for tuberculosis and leprosy. (Apparently on the theory that the antitubercular and antilepra factors are lost through the body by way of the kidneys.) Other races have prescribed it internally and externally for chronic ulcer states, psoriasis, scabies, etc., and as a diuretic, laxative, and a contraceptive agent. Certain Indians of Central America and Mexico have a novel test for diabetes. They leave specimens of urine exposed overnight. In the morning the urine is examined. If ants are found in it in great number, severe diabetes is present, if only a few or none are observed in the urine-containers, no sugar is present, and thus the patient is free of the disease.

346 NORTH VERMONT AVENUE

Treatment of Menopausal Symptoms

J. W. Peelen, Kalamazoo, Mich., in a study of the effect of the oral administration of diethylstilbestrol on menopausal symptoms (*Jour. Michigan Med. Soc.* 40:873 (Nov.) 1941) said: "At the start of this investigation the initial dosage was 1.0 mg. daily. This dosage was reduced shortly afterward to 0.5 mg. daily. The latter dosage was prescribed for two weeks with instructions that the drug should be discontinued for one day, if nausea developed, and resumed the next day. The initial dosage was considered adequate when the menopausal flushes were held in abeyance. This result was usually obtained within one week. Maintenance dosage was then determined, and in most instances was found to vary from three to seven 0.5 mg. capsules weekly . . . The largest total amount of the drug given to any one patient was 240 mg. The patient who was given this amount over a period of ten months did not develop any signs of intoxication . . . Two of the thirty patients were unable to take the drug because of nausea and vomiting. These manifestations appear soon after ingestion of the drug, and disappeared within twenty-four hours after its discontinuation. The nausea and vomiting promptly reappeared when diethylstilbestrol was again administered. Three patients experienced slight nausea when diethylstilbestrol was given daily; reduction of dosage to 0.5 mg. two to four imes weekly relieved the flushes without the appearance of nausea.

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RESULTS IN THE TREATMENT OF HAY FEVER

A Comparison of the Results of Preseasonal and Perennial Methods of Treatment of Ragweed Hay Fever

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At a recent round table discussion (1) on hay fever, opinions were voiced concerning the preference of the preseasonal or perennial methods of treatment of hay fever. Although the majority preferred the perennial method, there were those who not only preferred the preseasonal method but, as voiced by one authority, never advised the perennial method. It is not difficult to understand such obviously opposite views since, from the reports on both methods in the literature, the successful results differed in both methods by only about fifteen percent.

Unger (2) reported eighty-eight cases of hay fever in 1932, with satisfactory results in seventy-two percent of preseasonal cases and ninety-four percent of perennial cases. Colmes (3) reported ninety-seven cases of hay fever in 1932, with satisfactory results in eighty-four percent of preseasonal and ninety-four percent of perennial cases. He points out that, in about twelve percent of the cases, the results obtained by the perennial method were inferior to those produced by the preseasonal method. He cites a case with good results for three years on the preseasonal method but with only partial relief on the perennial method in the fourth year with the same maximum dosage.

Vander Veer and Clarke (4), in 1935, in a questionnaire study, reported on 159 cases of ragweed hay fever in which the patients had taken at least one season of treatment and in whom at least two years had elapsed since treatment was stopped. Fifty-three percent of these patients reported that they were completely or greatly relieved. Permanent relief in the New York series averaged 6.2 years of treatment, while those with poor results averaged 2.4 years of treatment. They concluded that permanent results can be expected in fifty percent of those treated, with better results in those treated a number of years, and best results in those treated from five to eight years. Further, they stated that permanent results were more apt to occur in those having successful seasonal results and were adversely affected by high atmospheric pollen content.

Vander Veer (5), in 1936, reported the results of treatment over a five year period averaging 430 cases per year and found that the perennial results were better than the preseasonal by about ten percent, but pointed out significantly that the perennial group had the more satisfactory cases since the unsuccessful cases were returned to the preseasonal group. He also pointed out that, year after year, the results of treatment varied with the pollen concentration of the air.

Spain and Fuchs (6) reported in 1937 on 950 cases of ragweed hay fever treated over a period of five years, 1932-1937, with satisfactory results in seventy-three percent of 692 preseasonal cases and ninety-four percent of 258 perennial cases. They pointed out that, whereas, in the preseasonal cases, the relationship of symptoms to pollen concentration in the air was consistent, in the perennial group the results were better in 1935 and 1936 despite a marked increase in the pollen concentration over the previous three years. They explained this by higher therapeutic doses and an increase in number of patients found suitable for the perennial method of treatment. It is, however, possible, as this study will show, that after a number of consecutive years of treatment, the relationship of symptoms to pollen concentration loses its consistency.

One of us (H. M.) (7) collaborated in a report in 1939 on 314 cases of ragweed hay fever and reported eighty percent satisfactory results in 239 preseasonal cases and ninety-four percent satisfactory results in seventy-five perennial cases. The present study is a report of 188 cases of ragweed hay fever treated in 1940 with seventy-seven percent satisfactory results in seventy preseasonal cases and eighty-seven percent in 118 perennial cases. This included only patients who were receiving their third or more consecutive year of treatment. Greater success undoubtedly would be evident if second year cases were included.

Clarke (8) reported on 612 cases of hay fever in 1937 and stated that perennial treatment was much less satisfactory than the preseasonal method. He pointed out that pollen concentration of the air affected the percentage of good results but not so much as one would expect since complete failures in 1931 were five percent less than in 1930 although the pollen in the air was greater in 1931 by fifty percent.

Cooke (9), Vander Veer (5), Colmes (3), and

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Rackemann (1) suggested the possibility that the perennial method was more likely to yield permanent cures in the treatment of hay fever.

Reports of the results of treatment of hay fever appearing in the literature from time to time have met with criticism which appears to be justified when thoroughly analyzed. Comparison of such results in a series of cases covering a number of years is difficult, since there are not only several variables which control the pollen concentration of the air in different years but also personal factors involved. The relation of pollen concentration and symptoms has not always been consistent, as pointed out by Spain and Fuchs and by Clarke. Even if consistent, this factor will vary from year to year depending upon the prevailing meteorological conditions as rain, velocity and direction of the wind, and temperature.

Eyermann (10) pointed this out in 1940 when he stated that the factors to be considered in determining the efficiency of any therapy in hay fever were, among others, the amount of pollen absorbed depending upon meteorological conditions, autoinoculation and personal factors. These factors vary from year to year and their effects differ not only in the same patient but in groups of patients. The comparison of results in a group of patients during a given year, but at different stages in their years of treatment, would eliminate this variable factor.

Again, in reviewing the report of Spain and Fuchs (6), Feinberg (11) criticized the comparison of results of preseasonal and perennial treatment of hay fever on the grounds that such a comparison was unfair since the perennial group contained all cases having had at least one year of preseasonal treatment, while the preseasonal group contained all cases having had only one season of treatment or more. He further stated that, since the first year of treatment yielded the poorest results, the preseasonal group would be expected to yield poorer average results than the perennial. In all fairness, this criticism should apply to a report on the comparison of the results of the first year of the preseasonal and of the perennial methods of treatment. He suggested that a fairer comparison should include only those preseasonal cases having had at least two years of treatment.

Finally, Eyermann (10) suggested that a given therapy should be applied to the same patient and evaluated in relation to the factors known to influence the symptomatology over a period of five years before drawing conclusions as to its worthiness as a therapeutic agent. That apparently would rule out reports of the results of hay fever therapy involving less than five seasons of treatment and would make more worthy those involving five or more seasons of treatment.

In this clinical study, a method of comparison of results is used in which these criticisms have been taken into consideration. No cases are considered in which less than three years of treatment were given and these brief cases are used merely to emphasize the value of either the preseasonal or perennial methods of treatment over a longer period of consecutive years of treatment. Since only the year 1940 is under consideration, the variables influencing the pollen concentration of the air are eliminated. It details the results of preseasonal and perennial methods of treatment in a group of seventy preseasonal and one hundred eighteen perennial patients who were taking their third to their thirteenth consecutive year of treatment in 1940.

These patients were treated at two allergy clinics in New York, the Post-Graduate Hospital and the Beth-El Hospital of Brooklyn. In this report, no patient with less than three consecutive years of treatment is included. The results are based upon the daily symptoms card furnished each patient, reviewed and corrected at the clinic at each visit, and recorded as either no, slight, moderate, or severe hay fever. Each patient received either the preseasonal or the perennial method of treatment throughout the entire attendance at the clinic. In only an occasional case was this interrupted so that a year of preseasonal treatment was given because of the failure of attendance by a perennial patient. As stated previously, all perennial patients received one year of preseasonal treatment at the onset, but this is considered a year of treatment. The results of treatment were graded according to the following scheme:

Table I: Results of Treatment for Entire Group of 188 Cases in 1940

Total cases (118 perennial and 70 preseasonal)	188	
Excellent results	97 or 52 percent	84 percent
Good results	60 or 32 percent	
Poor results	31 or 16 percent	

No severe days ..... excellent
One to four severe days ..... good
Five or more severe days ..... poor

This arrangement is rather strict since we always considered one severe day within the bounds of excellent results and five severe days within the bounds of good results. This no doubt lowered the percentage of satisfactory results in the perennial cases since in a previous paper we reported such results at least 10% higher than in this report.

For the entire group we are able to report (Table I) eighty-four percent satisfactory results against sixteen percent unsatisfactory results with both methods of treatment. This compares favorably with similar reports by other investigators in recent years.

Table II: Results of Treatment for the Preseasonal and Perennial Groups in 1940

Preseasonal Group		
Total cases	70	
Excellent results	27 or 38.5 percent	77 percent
Good results	27 or 38.5 percent	
Poor results	16 or 23 percent	
Perennial Group		
Total cases	118	
Excellent results	70 or 59 percent	87 percent
Good results	33 or 28 percent	
Poor results	15 or 13 percent	

Dividing the total cases into both methods of preseasonal and perennial treatment, the results are seventy-seven percent satisfactory for seventy preseasonal cases and eighty-seven percent satisfactory for one hundred and eighteen perennial cases. However, there were fifty-nine percent excellent results (not a single severe day) for the perennial group against 38.5 percent excellent results for the preseasonal group. As stated above, the results in the perennial group would

undoubtedly be higher with the inclusion of the two year treatment group (Table II).

While reports such as these have frequently appeared in the literature and with very similar results, the story they tell is descriptive only of the year in question. They give no impression to the reader as to the effect of treatment on the individual patient at any particular

Table III: Number of Patients Treated in 1940 with Ragweed Extract by the Preseasonal and Perennial Methods According to the Number of Consecutive Years of Treatment (Including 1940)

Consecutive Years of Treatment	Preseasonal	Perennial
3 years	24	28
4	13	20
5	7	21
6	8	16
7	6	7
8	5	13
9	3	7
10	2	1
11	1	1
12	0	3
13	1	1
Total	70	118

period in his long years of treatment. If one is to consider permanent cure or end results of a number of consecutive years of treatment, such figures are of no value. For instance, if eighty-seven percent of perennial patients received satisfactory results by means of perennial treatment in 1940, can we judge by such figures what effect ten or fifteen or twenty years of such consecutive treatment will have on this group and can such figures help in arriving at any conclusion as to permanent cure and the number of years required to achieve this status?

By dividing the groups of both treatment methods into their respective number of years of treatment in a given year it is possible to judge during a given season the effect of each method of treatment during the various stages of such treatment (Table III).

According to Table III, the group of 188 patients studied consisted of seventy preseasonals and one hundred and eighteen perennials. These were divided according to the number of consecutive years of treatment they had received and according to the method of treatment. For example, in 1940, twenty-four patients received the third consecutive year of preseasonal treatment whereas twenty-eight received the third consecutive year of perennial treatment, etc. One patient was taking the thirteenth consecutive year of treatment for each method. It is evident from the table that there was a limited number of patients receiving more than eight consecutive years of treatment with either method but it is difficult to collect very many of these prolonged treatment cases in the clinic or in private practice.

The various years-of-treatment groups were then studied and the results of treatment for both methods are recorded in Chart I. It is noted that during 1940, patients taking from their third year of treatment to their eighth year of treatment showed from thirteen percent to sixty percent poor results with the preseasonal method and none to thirty-one percent poor results with the perennial method of treatment. The thirty-one percent poor results in the sixth year of perennial treatment was so outstanding that a review of those cases was made. In one case, A 96554, excellent results the past four years on five thousand protein nitrogen units yielded poor results the fifth year on ten thousand units and further poor results the sixth year on ten thousand to twelve thousand protein nitrogen units with a return of pollen asthma immediately following the last injection of twelve thousand units. Lower dosage in this case seems to have been indicated by repeated large local reactions.

In patient B 18415, excellent results for four years were followed by poor results the fifth and sixth years of treatment on similar dosage but on elimination of the weekly injections during the season. This patient received only one injection during the six weeks of the season. Patient A 54593 has had perennial treatment for six years with from seven to twenty-four severe days yearly for the six years. However, there were many large local reactions and one constitutional reaction even with doses that did not exceed two thousand protein nitrogen units in 1939 and 1940. Dust and vaccine were added to the therapy. In 1941 only five severe days were experienced during this season but vaccine therapy was eliminated that year. Patient B 15738 had poor results throughout the six years of treatment with twenty-two severe days in 1940. However, although he received only thirteen treatments for the entire year, these were frequently followed by clinical as well as local reactions. Unquestionably, this patient does not belong in the perennial group. Lastly, patient B 15954 had excellent results up to the sixth year when eleven severe days were experienced in 1940. This patient had repeated large vocal reactions after injections and the final top dose was only two thousand protein nitrogen units. On August 26th,

Chart I: Comparison of Results of the Preseasonal and Perennial Methods of Treatment in 1940 in 188 Cases According to the Number of Consecutive Years of Treatment Received for Each Method

	PRESEASONAL					PERENNIAL				
Years of Treatment	Total Cases	Percent Excellent Results	Percent Good Results	Total Percent Good Results	Percent Poor Results	Total Cases	Percent Excellent Results	Percent Good Results	Total Percent Good Results	Percent Poor Results
3	24	33	42	75	25	28	50	36	86	14
4	13	30	39	69	31	20	75	20	95	5
5	7	57	27	84	16	21	81	5	86	14
6	9	33	44	77	23	16	25	44	69	31
7	6	16	68	84	16	7	86	14	100	—
8	5	20	20	40	60	13	39	53	92	8
9	3	67	33	100	—	7	57	43	100	—
10 to 13	4	100	—	100	—	6	66	34	100	—

following an injection, there developed severe hay fever with a large local reaction, and this continued for eleven days. This patient was a class C case in 1936, 1937 and 1938 and a class B case in 1939 and 1940. This increased degree of sensitivity was accompanied by increased local reactions. In 1938, after a very successful season on perennial treatment, treatments were not continued and in 1939 preseasonal treatment was given with good results but with increased sensitivity and local reactivity and in 1940 perennial treatment was not so successful because of the severe local and clinical reactions following in-

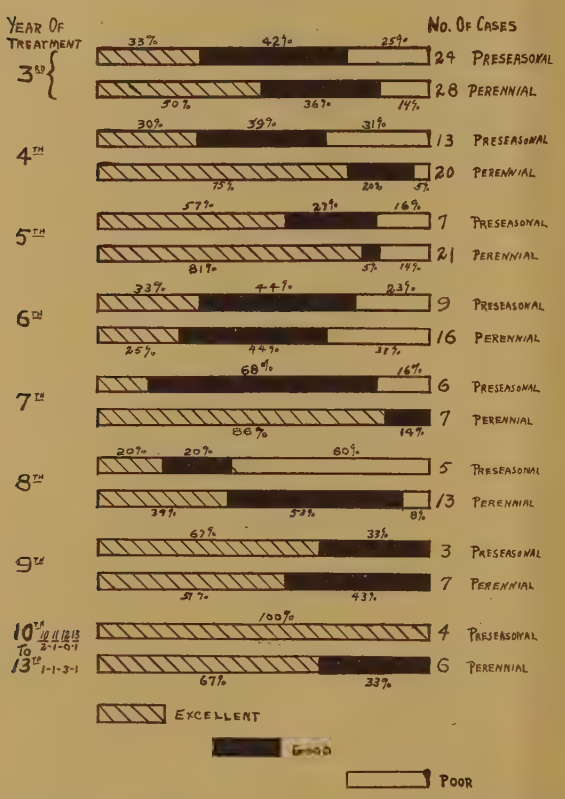

CHART II.—Comparison of preseasonal and perennial treatment of ragweed hay fever. Results in 1940 in groups at successive years of treatment.

jections. The cause of this lowering of tolerance for ragweed cannot be easily explained.

After the eighth year of treatment, Chart I shows no failures with either method of treatment. In this group, the preseasonal results were fully as good as the perennial results. It will be noted that there was one case in each group taking the thirteenth year of treatment, three perennials with twelve years of treatment, one each with eleven years of treatment, etc. While this number is small, it is not an easy matter to find many cases taking treatment for such a long period of time either in a clinic or an office.

Chart II shows graphically the gradual decrease in the percentage of unsuccessful results as the number of years of treatment increases in the perennial cases except for the six year group. This is not true for the preseasonal group. After the eighth year of treatment, however, there were no failures with either method of treatment. The failures are indicated on the chart by the white portions at the right of each yearly graph. The upper half of each yearly graph indicates the preseasonal results and the lower half the perennial results.

It might be argued that the excellent results in the ninth-to-the-thirteenth-year-of-treatment group may be due to the fact that these represent the cases successfully treated while the unsuccessful cases had already dropped out during the previous years of treatment. Also that these few cases represent the occasional case that would, in any given group, respond over a long period of years to any type of therapy, whether it be specific, nonspecific or even psychological. However, according to Table IV it is unusual for many patients to wait for the ninth year of treatment to drop out because of poor results. The third to the fifth year ap-

Table IV: Results of Treatment of Ragweed Hay Fever in 1939 in 27 Patients who Failed to Return for Treatment in 1940

No. of Patients	Results of Treatment in 1939	No. of Years of Treatment 1	2	3	4	5	6	7
15	Excellent	4	5	3	1			2
6	Good		2	1	1	1	1	
6	Poor		2	3	1			

pears to be the critical period, before which most patients have already discontinued treatment and beyond which very few patients drop out of a given group.

If the patients under study in this group represent only successfully treated cases, then it must be argued that those who have discontinued treatment have been the unsuccessfully treated cases. A study of those patients who have discontinued treatment at the termination of the 1939 year of treatment and failed to return for treatment in 1940 at one of the clinics reveals the following: twenty-seven patients failed to return for treatment in 1940 after from one to seven consecutive years of treatment. The loss of patients appears to be heaviest in the first three years of treatment and seems to be almost complete by the fourth year. This loss appears greater in the group with satisfactory and excellent results than in those with poor results. In the latter group, the reasons are quite apparent. The reasons for the loss of successfully treated patients can only be speculative. In some cases, it may be a change of residence; in others, a change in financial status, allowing for private treatment; but in others, probably the greatest number, it is the desire, without advice of physician, to experiment for one or more years with the results of treatment, in the hope that permanent results had been attained. Needless to say many of these are doomed to disappointment and will return for further treatment, vowing to continue this indefinitely. A poor therapeutic result is apparently not the major cause for discontinuation of therapy and the nine to thirteen year group does not represent those cases alone who have been successfully treated.

Discussion

Although the number of patients under discussion is admittedly small, a certain trend in the results of treatment can be discerned. For the entire group, the

results reported compare favorably with those of other investigators. It seems that while the perennial method of treatment is superior to the preseasonal method in the early years of treatment, this superiority seems to disappear as treatment is continued. After the eighth year of treatment, results are excellent with either method of treatment. Walker (12) stresses a minimum of a five year period of treatment, and Vander Veer and Clarke (4) mention a five to eight year period of treatment. These findings will aid us in advising our patients at the beginning of treatment and will support the opinion that, while results with either method are likely to be successful, the perennial method of treatment will give the more satisfactory results during the several years of treatment. This advice, however, should not ignore the accepted contraindications for the use of the perennial method of treatment. Permanent results, as suggested by Vander Veer, will depend upon successful seasonal results. From our present study, it is apparent that successful seasonal results may follow either the perennial or the preseasonal methods if such treatment is carried out over a number of consecutive years.

Conclusions

In a study of the results of the preseasonal and perennial methods of treatment in a group of seventy preseasonal and one hundred and eighteen perennial ragweed treated cases in 1940, it is found that, in those patients receiving their third to eighth consecutive year of treatment, the perennial method yielded results superior to those of the preseasonal method of treatment. After the eighth year of treatment, uniformly successful results were obtained in an admittedly small group of twenty patients with both methods of treatment. Hence, generally successful results may be obtained eventually with either method of treatment. The question of permanent results, therefore, should not be considered as applicable to the perennial method of treatment alone, but is also possible with the preseasonal method. About three times as many patients with satisfactory therapeutic results fail to continue treatment for hay fever in a given year as with poor results. The greatest loss of such patients in the clinic occurs in the first three years of treatment.

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HYPERTENSIVE AND ARTERIOSCLEROTIC HEART DISEASE

Some Clinical Observations

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A report (1) was recently made of the etiological types of heart disease, and their incidence, encountered in an analysis of five hundred cases of organic cardiac disease. It was shown that hypertension and arteriosclerosis were the causative factors in approximately eighty percent of the patients. Data regarding the relation of tobacco, occupation and heredity to hypertension and arteriosclerosis were presented. These observations should be of some interest to the readers of the Medical Record.

Material for the report was gathered by one person, the author. It was recorded from day to day in the regular practice of internal medicine in the clinic, in hospitals (not charity), in the home and in consultation. This was a clinical study. Diagnosis was not based on autopsy findings, but changes and additions were made in a few cases when discrepancies were revealed by postmortem examination. These patients had either signs or symptoms of organic heart disease. In the vast majority, heart disease was the primary and presenting condition. In practically all the others it was an important factor in the illness. In only a very small number was it an incidental finding.

The five hundred patients were white adults, 267 men and 233 women, only one of whom was under twenty years of age (an eighteen year old girl with congenital heart disease). They were residents of small cities, towns and rural communities. Except for ten or twelve, none was a resident of a city of more than thirty thousand inhabitants. Approximately one hundred were farmers or wives of farmers. There were eight physicians. The remainder were chiefly small business men, laborers and housewives.

Etiological Groups

The five hundred patients were classified into five primary etiological types or groups. The groups were essentially the same as those used by most writers in recent years. They were as follows:

1. *Hypertensive heart disease.*—Into this group were placed all patients whose heart disease was primarily due to hypertension alone or to hypertension associated with clinical arteriosclerosis. All that was necessary for the diagnosis of hypertensive heart disease was the presence of cardiac hypertrophy due to "essential" hypertension. High blood pressure was not always present at the time of examination, but either a definite history of previous hypertension or good clinical evidence of its prior existence was required. Most of the members of group one had signs or symptoms of myocardial failure. Seventy-five percent of the group had arteriosclerosis in addition to hypertension and

were placed in the sub-group hypertensive-arteriosclerotic.

2. *Arteriosclerotic heart disease*, that is, heart disease due to coronary sclerosis. Into this group were placed those patients whose heart disease was considered to be due to "degenerative" changes in the coronary arteries and in whom hypertension had not been a demonstrable factor. All cases of coronary disease associated with significant hypertension were included in group one. Most of the patients in group two had either "congestive failure", paroxysmal dyspnea, angina pectoris, coronary occlusion, or some combination of these. A few had only dyspnea on effort, but it was always of a significant degree.

3. *Rheumatic heart disease.*—Included in this group, which contained seventy-two patients, were cases of valvular heart disease thought to be caused by rheumatic fever or an allied infection. Valvular disease was present in every case, and no other cause for the deformed valves could be demonstrated. Cases of aortic sclerosis were included in this group. No case of uncomplicated chronic rheumatic pericardial disease was recognized.

4. *Syphilitic heart disease.*—Into this group were placed all patients suspected of having syphilitic cardiac involvement even though some other cause was apparently of greater etiological importance. It included cases of aortic regurgitation and cases with symptoms of coronary involvement. Cases of uncomplicated syphilitic aortitis were not included, and no case of aortic aneurysm or syphilitic myocarditis was recognized. There were ten patients in the group.

5. *Miscellaneous group.*—This was a heterogeneous group. It contained a total of twenty patients. Cases of heart disease due to hyperthyroidism, hypothyroidism, nutritional disturbances, chronic pulmonary disease, acute bacterial endocarditis, and congenital anomalies and members of an unclassified group were placed here.

Hypertensive Heart Disease

This was the largest group. Of the five hundred cases, 320 or sixty-four percent, were so classified. In the group there was a preponderance of women, 169 to 151 men. The men were aged thirty-seven to eighty-three years, with an average age of fifty-nine. The women were aged forty to ninety years, with an average age of sixty-one. Of the men, thirty-eight were farmers, seventy-two were business men, and thirty-four were laborers. There were seven physicians. Of the women, 155 were housewives, twenty-five of them were wives of farmers. Only fourteen were business women. In the entire group the presence or absence of a family history of hypertension was recorded in 178. Of these, 130, or seventy-three percent, gave a definite history of familial hypertensive cardiovascular disease. Data were available regarding the use of tobacco in 255. Seventy-one percent of 137 men and only ten percent of 118 women were users of tobacco. In the men, systolic blood pressure varied from 145 to 280, and diastolic from 90 to 175, with an average blood pressure of 185 systolic and 115 diastolic. In the women, systolic blood pressure varied from 140 to 296, and diastolic from 80 to 150, with an average of 192 systolic and 115 diastolic. The average blood pressure for the entire group was 190 systolic and 115 diastolic.

Arteriosclerotic Heart Disease

There were seventy-eight cases in this group or 15.6 percent of the total five hundred cases; sixty-five were men, and only thirteen were women. The patients varied in age from thirty-seven to ninety-four years, with an average age of sixty-four for the men and sixty-three for the women. Of the men, ten were farmers and forty-seven were business men. A family history of heart disease of similar or closely related type was obtained in fifty-two percent of those for whom data were recorded. Information was available regarding the use of tobacco in thirty-nine men, of whom twenty-six, or sixty-six percent, were users, and in nine women, of whom only one used tobacco. The blood pressure varied from 100 to 170 systolic, and from 80 to 100 diastolic. The small number of women in this group was striking. It was our experience that arteriosclerotic heart disease in the absence of hypertension was uncommon in women. Diabetes mellitus was present in such women frequently enough to demand a thorough search for it in every case, and it must not be forgotten in men.

In one case our attention was forcibly called to gout. A man, aged forty-seven, was first seen during his fourth attack of coronary occlusion. His blood pressure had always been normal, diabetes was excluded and a history of pain, soreness and redness in joints of the feet with definite exacerbation of pain during two prior attacks of occlusion was elicited. The diagnosis of gout was easily confirmed, and while under observation there was an exacerbation of pain, etc., in the right first metatarsophalangeal joint. Uric acid was ten mg. per 100 cc. of blood. Response to therapy was prompt. There were two other cases of gout in the series. One case occurred in a man with late latent syphilis while he was receiving liver and stomach extracts for pernicious anemia, and the other in a moderately obese man who had an unexplained auricular fibrillation.

Hypertensive and Arteriosclerotic Groups Combined

Hypertension and arteriosclerosis were by all odds the most important etiological factors in this group of five hundred cases of organic heart disease in adult white men and women. They were considered to be responsible for the heart disease in 398, or 79.6 percent, of the entire group. Of the 398 patients, 216 were men, with an average age of sixty-one years, and 182 were women, with an average age of sixty-two years. Among the men, there were forty-eight farmers, 112 business men, forty-eight laborers, and eight physicians. Of the women, thirty-four were wives of farmers, 134 were wives of men of various other occupations, and only fourteen were business women. One hundred and twenty-four, or sixty-eight percent, of 176 men, and thirteen, or ten percent, of 127 women, used tobacco. There was a family history of degenerative cardiovascular disease in 153, or sixty-nine percent, of 222 for whom data were available.

In this group of 398 patients, seventy-nine had angina pectoris and fifty-eight coronary occlusion. In the angina pectoris group there were fifty-six men and twenty-three women. The average age was sixty-two. In the coronary occlusion group there were forty-one men and only seventeen women. The average age of the

patients in this group was fifty-eight years. Data were available regarding the use of tobacco in fifty patients with angina pectoris; of these, twenty-two used tobacco. Similar data were available in forty-six cases of coronary occlusion; twenty of the patients used tobacco.

In addition to the 398 patients with heart disease due to hypertension and arteriosclerosis there were eighteen of the seventy-two in the rheumatic group, six of the ten in the syphilitic group and four of the twenty in the miscellaneous group who had significant hypertension and arteriosclerosis. Therefore, of the five hundred cases, hypertension and arteriosclerosis were important etiological agents in 426, or approximately eighty-five percent.

Summary and Discussion

In the area covered by this study, the residents of which are chiefly small business men, farmers, housewives and laborers, hypertension and arteriosclerosis caused four-fifths of all cardiac disease, and they were important etiological agents in another five percent. Arteriosclerotic heart disease in the absence of hypertension was uncommon in women. Its presence demands an investigation for diabetes mellitus. No new light was thrown on the cause of hypertension and arteriosclerosis by this study. Heredity was important. A family history of hypertensive cardiovascular disease was obtained in sixty-nine percent of those questioned. It was undoubtedly of greater incidence. Diabetes and gout should not be forgotten in degenerative heart diseases. Occupation and tobacco were not etiological factors, neither were they of any definite etiological importance in angina pectoris and coronary occlusion.

Much has been said about the hard driving business man and the hypertensive cardiopathies. There was not much evidence in this study of any direct relationship between the two. There were as many farmers and laborers combined as there were business men, and in the hypertensive group there were more housewives than there were men of all occupations. If occupation is of any importance, it would appear to be more hazardous to be a housewife than to be a business man. It is equally difficult to attach any causative importance to tobacco. Only ten percent of 127 women with these types of heart disease used tobacco. Rather, heredity ought to be stressed. Members of hypertensive families should be advised against intermarriage.

The advanced age of the patients in this study was striking. The average age of the hypertensive arteriosclerotic group at the time the diagnosis was made by us was sixty-one years. Thus it will be seen that these people had time to do a considerable portion of their life's work before the disability began. This is of great economic importance. Disability in rheumatic heart disease begins at a much earlier age. Death usually occurs before the age of forty, and where this form of heart disease is very prevalent, the economic loss in cardiac patients is much greater. On the other hand, until more is known about the cause of hypertension and arteriosclerosis the incidence of heart disease will not be appreciably lowered in this community.

Syphilitic heart disease can be eradicated, but the effect of this on the incidence of heart disease among white people here would be negligible. A reduction of about fifty percent in the number of cases in the miscellaneous group should be expected. That would eliminate two cardiac cases in each hundred such patients. Though rheumatic fever and allied infections are relatively uncommon causes of heart disease in this area, they are of sufficient frequency to demand careful study. Could they be eliminated approximately fifteen of every hundred cardiac patients would be candidates for some other disease.

Conclusions

1. Hypertension and arteriosclerosis were the etiological factors in 79.6 percent of five hundred cases of cardiac disease in adult white patients, and were contributing factors in another five percent. Approximately twenty percent of the patients in this group had angina pectoris and about fourteen percent had coronary occlusion. Seventy-three percent of the patients in the hypertensive group for whom data were available had a family history of hypertension. Occupation and the use of tobacco did not seem of etiological importance. Diabetes and gout should be remembered. Heredity needs further study and eugenics more consideration.

2. The average age of the members of the hypertensive-arteriosclerotic group was 61.5 years. The comparatively advanced age is of great economic importance.

3. Significant reduction in the incidence of organic heart disease in adult white people in this community awaits the solution of the problem of hypertension and arteriosclerosis.

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PULMONARY VASCULAR LESIONS AND RIGHT VENTRICULAR HEART FAILURE

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Chronic right ventricular strain and the resulting right-sided heart failure may present diagnostic difficulties not usually appreciated. The presence of cardiac failure may be obvious enough but the history and the objective findings do not reveal the underlying condition. Even the more common pulmonary diseases, such as obstructive emphysema, may escape detection, especially when overlapped by cardiac failure. The cardiac enlargement, systolic murmur, and the signs of pulmonary stasis usually suggest an etiological factor, primarily affecting the left heart. This impression is strengthened by a past history of dyspnea,

thought to have been caused by left-sided heart failure. Yet it is well known that dyspnea may be the only manifestation of obstructive emphysema for a long time.

A variety of pathological conditions in the pulmonary arteries, leading to hypertrophy and eventual failure of the right ventricle, are not usually recognized clinically. These conditions include repeated pulmonary emboli or organized thrombi, partially occluding major branches of the pulmonary arteries, Ayerza's disease, and arteriolar sclerosis with pulmonary hypertension. Vascular changes in the pulmonary circuit frequently do not follow a clinically recognizable pattern and not enough is known of the mechanism whereby they affect the heart. In some instances chronic right ventricular failure develops as a result of repeated acute vascular episodes, such as repeated attacks of pulmonary embolism. The individual attack, however, causes relatively mild symptoms and may not be characteristic. It is, therefore, often overlooked and not properly evaluated.

The first point in the diagnosis of these obscure cases of right ventricular strain is to keep them in mind. We should remember that the pathologist finds them far oftener than the clinician and that even in cases of intrinsic diseases of the lungs, the associated vascular damage probably plays an essential part in the production of the ensuing right-sided heart failure.

The second point of importance is a careful history which may bring out facts which do not fit in with the usual history of cardiac failure and may suggest one or more acute vascular incidents. The typical history of pulmonary embolism, with pain, expectoration of blood, and fever is comparatively rare in chronic right ventricular strain due to pulmonary embolism. More common is the history of a sudden pain in the chest, aggravated by deep breathing and associated with dyspnea. This attack is of short duration, as a rule, but the patient suffers a similar attack after a varying interval of time which may amount to hours, days or weeks. These attacks of pain are frequently attributed to "pleurisy" or to "intercostal neuralgia". The characteristic feature of these attacks is, however, that after their repeated occurrence, the patient develops congestive heart failure. In this event there is a tendency to attribute the cardiac failure to past coronary thrombosis, particularly when the pain was substernal or precordial in location.

The lack of correlation between the pathological and clinical findings in cases of chronic vascular diseases of the lungs contributes much to the diagnostic difficulties. Brenner (1) in his comprehensive study of the diseases of the pulmonary vessels, points out that the structural lesions frequently do not account for the cardiac failure. The assumption that the changes in the pulmonary arteries cause a rise of the arterial pressure which in turn leads to right ventricular hypertrophy and eventual rightsided failure is not warranted. The vascular changes are often moderate and sometimes trivial. In all cases some vessels are normal. In the systemic circulation the most extreme arteriosclerosis does not cause hypertension. Ligation of the pulmonary artery to one lung causes only a slight and transient rise of the pulmonary arterial pressure and hardly any hypertrophy of the right ventricle.

Under the circumstances we must assume that chronic pulmonary vascular disease associated with right ventricular strain is a purely clinical concept, a syndrome the mechanism of which is uncertain. This syndrome is usually included in the clinical concept of the socalled cor pulmonale, but it is better to differentiate between the purely vascular lesions and the chronic pulmonary conditions leading to right ventricular strain. There are definite etiological differences between these two groups and their relation to cardiac failure is probably not the same.

Forms of Vascular Lesions

Various forms of pulmonary vascular lesions have been described by Brenner and others. From the clinical point of view there are vascular lesions which are gradually progressive and present more or less similar symptoms despite certain morphological differences. Primary vascular sclerosis, endarteritis obliterans and Ayerza's disease are lesions characteristic of this group of chronic vascular diseases of the lungs. They develop insidiously and show a gradually progressive trend. Increasing right ventricular failure, appearing without obvious cause, (intrinsic cardiac lesion, vascular lesion of the greater circuit, cor pulmonale) dominates the clinical picture. Cyanosis and edema may be in striking contrast to the slight degree of dyspnea present. Right-sided enlargement of the heart may not be demonstrable on physical examination or the heart may appear enlarged to the left more than to the right. On x ray examination, however, enlargement of the pulmonary conus is frequently observed. Marked accentuation of the second pulmonic sound is a fairly constant finding. It is of interest that in the few published cases of the purely vascular lesions (without emphysema or other pulmonary diseases) little, if any mention is made of the pulmonary status. The lungs were considered apparently negative in these cases. It seems, therefore, that in the absence of an intrinsic cardiac lesion and of chronic pulmonary involvement, a marked accentuation of the second pulmonic sound is suggestive of a pulmonary vascular lesion.

Systolic murmurs over the apical area or over the base of the heart are not uncommon. Occasionally a diastolic murmur may be heard over the base of the heart, near the sternal margin. These murmurs may be erroneously attributed to a valvular lesion or to a congenital anomaly of the heart, especially when enlargement of the pulmonary conus is also present. Equally misleading may be the presence of hypertension, a common etiological factor in cardiac failure. Of great diagnostic interest are the electrocardiographic findings, recently described by Barnes (2). He describes cases in which the electrocardiogram reveals the only abnormal findings definitely suggestive of primary right ventricular strain.

The clinical course is usually somewhat different in the cases with repeated vascular episodes, such as embolism or thrombosis in the lungs. These lesions are common but rarely cause severe symptoms unless a large branch of the pulmonary artery is blocked. There is a small number of patients who, after surviving two or three or more pulmonary vascular incidents, finally die of chronic right-sided heart failure. These recurrent attacks of pulmonary artery occlusion may not be diagnosed or may be mistaken for acute coronary occlusion. This applies particularly when a possible

source of pulmonary embolism, such as peripheral venosus thrombosis, or pre-existing heart diseases is not present. There are certain features which distinguish this pain from that suffered in acute coronary occlusion. It may be anywhere in the chest, and as pointed out above, is increased by deep breathing and associated with more dyspnea and cyanosis than the coronary pain. It resembles, perhaps, more the pain of spontaneous pneumothorax than that of coronary disease. Pneumothorax is distinguished from pulmonary vascular lesions by characteristic physical and x ray findings.

The physical examination is of little help in the diagnosis of these cases. Enlargement of the heart to the right may or may not be demonstrable. Murmurs may appear, but are not of much diagnostic value. Of more value is the accentuation of the second pulmonic sound. In this class of cases a pulmonary infarct is not demonstrable as a rule, particularly when the patient is seen in the stage of right-sided cardiac failure. The electrocardiogram as described by Barnes and others is said to be of considerable diagnostic value in some cases.

Right-sided heart failure may follow closely upon an attack of vascular occlusion in the lungs, or it may develop more insidiously. As a rule, the patients do not recover completely from the effects of the pulmonary vascular episodes. They remain dyspneic and weak even though free from pain. It is likely that the cumulative effect of the strain upon the right ventricle eventually leads to the circulatory breakdown. This process will naturally be accelerated if the myocardium was damaged by a previous lesion. The role of this factor is not definitely established, however.

The diagnosis of right ventricular failure resulting from occlusive lesions of the pulmonary branches is admittedly difficult and may be impossible in some cases. From a diagnostic point of view it is desirable to separate this group of cases from the socalled cor pulmonale. In the diagnosis of the latter the presence of a specified pulmonary disease, such as emphysema, pulmonary fibrosis, or pneumoconiosis, is essential (3). In the group under discussion we are dealing with purely vascular lesions and the involvement of the lungs is secondary. Indeed, it is the absence of a primary pulmonary disease which should lead us to suspect pulmonary vascular lesions in the presence of otherwise unexplained right-sided heart failure.

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NARCOLEPSY

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Narcolepsy is a syndrome having two symptoms: attacks of untimely sleep, and the occurrence of one or more forms of localized sleep which are attacks of loss of muscle tone precipitated by strong emotion. The first is narcolepsy, and the other is cataplexy.

The most frequent cases are those in which both varieties—narcolepsy and cataplexy—occur; the next are those in which narcoleptic attacks appear alone; and most rare are those in which cataplectic attacks occur alone.

Westphal, in 1877, reported the first case (1) and Gelineau in 1880, gave a complete description of the syndrome. It occurs more frequently in males (2) and in local forms as described by Gerlier (3). A less common form is sleep paralysis.

The attacks of irresistible and overpowering sleep are often repeated several times daily and usually last over half an hour, but may be of variable duration. They occur under conditions more or less opposed to physiological sleep, and there is sudden dissolution of postural tone, following emotional occasions such as laughing.

Cataplexy is a general inhibition of the tonus of attitude and was named by Henneberg in 1916 (4). Cataplectic attacks are a result of cortical inhibition, and the complete motor paralysis, which accompanies the tonic dissolution, is caused by cortical intervention (5). Pavlov believed that sleep and cortical inhibition were the same thing, and that narcolepsy is due to excessive inhibitability of the cerebral cortex (6). Inhibition of the cortex as a whole, therefore, accounts for the sleep attack and inhibition of localized areas of the cortex for the attacks of localized sleep.

Narcolepsy differs from epilepsy in that narcolepsy resembles ordinary sleep in its inhibition of cortical reflexes. Epilepsy, on the other hand, has an abnormally increased tension.

Richard Bright described a patient who had, for thirty to forty years, been subject to narcoleptic as well as cataplectic attacks (7). Autopsy showed atheromatous changes in the carotid and basilar arteries. He also reported another case in which the patient had for twelve years been affected with lethargic somnolence in which extensive atheromatous changes were found on autopsy (8).

The sleep attacks closely resemble normal sleep, and the patient can usually be aroused easily. They occur most often in situations in which healthy persons doze off, such as after a meal or at church. Occasionally, they may occur in most inconvenient situations, such as while walking or while driving an automobile.

Any emotion, pleasant or unpleasant, may bring on the cataplectic attack. It occurs commonly in the midst of loud, heavy laughter, when the patient will suddenly collapse, will remain fully conscious, but will be unable to open the eyes, speak, or otherwise move. At this time, there is atony and diminished reflexes. Sometimes the muscular relaxation is partial rather than general. In some cases, a definite relation exists between the depth of emotion and the extent of the cataplexy (9).

In most patients, the sleep attacks and the cata-

plectic attacks are distinct, while in others there is a relationship between them in that the emotion may be followed by sleep, or by cataplexy and then sleep. In some patients, the sleep attacks antedate the appearance of the cataplexy by a year or more; in others it is the reverse, while in still others the two symptoms appear at the same time. After the onset the large majority of cases remain stationary. Psychoses are present in a few cases, while milder disturbances are extremely common.

The infundibular syndrome, with bitemporal hemianopsia, dysarthria, psychic disturbances, attacks of narcolepsy, circulatory disturbances such as tachycardia and arrhythmia, and persistent thirst, is probably due to infundibular effects on the sympathetic system.

Redlich pointed out that with narcolepsy there is frequently an associated endocrine dysfunction, such as obesity, enlarged thyroid, hypothyroidism, hypogenitalism and abnormalities of the sella turcica. Cassidy described the case of a male, aged thirty-three years, who suddenly became obese and x ray examination showed a small sella turcica. With whole pituitary gland treatment, considerable improvement was secured (10).

Wilson distinguished between symptomatic narcolepsies without cataplectic manifestations and origination in the diencephalon from the narcolepsy catalepsies of cortical origin which are primary.

Some have believed that where narcolepsy alone is present, there is no organic basis, and where cataplexy is present, there is some organic lesion of the central nervous system (11). Verger classifies them as: 1, Essential where no organic base is present, and it is due to a functional disturbance of the central nervous system particularly of the cerebral cortex; 2, the false narcolepsies which are simply abnormal sleep, due to an organic mesodiencephalic lesion.

In some cases an underlying cause is found, and in these the narcoleptic syndrome is symptomatic. As a pathogenesis, Levin believed that the corpus striatum played a rôle in the production of cataplexy (12). In these cases, epidemic encephalitis and cerebral trauma are the most frequent causes. Brain tumors affecting the center of the floor of the third ventricle and the region of the aqueduct of Sylvius (13), multiple sclerosis, general paralysis and epilepsy occurred in a few cases. In cerebral tumors, narcolepsy is not frequent. Baruk found two instances in fifty-six cases (15), in one of which an infundibular tumor was present, and in the other, a tumor of the epiphysis. Claude and Lhermitte described a cystic tumor of the third ventricle associated with diabetes insipidus and bitemporal hemianopsia in which narcolepsy was present (16). Fulton and Bailey reported the case of a woman, twenty-four years of age, who had a tumor of the third ventricle, with both narcoleptic and cataplectic attacks (17).

Where the foramina of Munro are obstructed, the lateral ventricles are dilated causing hydrocephalus, paresis of one or both limbs and symptoms of the thalamic syndrome with hemianesthesia, hemiataxia, hemiplegia, choreiform movements, athetosis and pain on the anesthetic side. A paresis of the limbs, change of tendon reflexes, and mental symptoms of apathy and somnolence are due to transmitted pressure on the cortex. This condition is characterized by periodic attacks of an over-powering desire to sleep, from which the patient may be roused, but will immediately drop off to sleep again. This is often considered to be a variant of epilepsy. The percentage of organic brain lesions found in epilepsy is about fifteen percent, of which brain tumor constitutes one-fourth. The same possibility of a brain tumor being present as a causative factor is probably true in narcolepsy.

Case Report

A. G. L., aged twenty-eight, white, male, a flour miller by occupation, was first seen on May 28, 1938, with narcolepsy and cephalalgia as the chief complaints. These attacks of narcolepsy had begun previously, and had become increasingly frequent. They were brought on by laughing, anger, or any emotional state. Symptoms of intracranial pressure became more evident with observation and a diagnosis of glioma was made by ventriculogram. This glioma was removed and the pressure symptoms due to it were relieved. When last heard from in December, 1940, the patient was able to work, but the attacks of narcolepsy were still present.

Conclusion: This case was one of primary narcolepsy and the later development of a glioma was coincidental.

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CARCINOMA AND TUBERCULOSIS OF THE LUNG*

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The concomitant occurrence of pulmonary tuberculosis and primary carcinoma of the lung is quite infrequent. So rare, in fact, is this combination of diseases that many investigators have advocated the theory that there exists an antagonism between them. Graham (1), in 1921, stated that in his series and those of others, pulmonary tuberculosis has been an infrequent accompaniment of primary carcinoma of the lung. Cooper (2), in 1932, collected data on cases of pulmonary tuberculosis associated with primary carcinoma of the lung and was able to find only forty-eight cases in the literature. To this series he added one case. Fried (3), three years later, reported an additional thirteen cases. Of the forty-nine cases reported by Cooper (2), the sex was given in thirty-four cases. Of these thirty-four cases, twenty-nine were

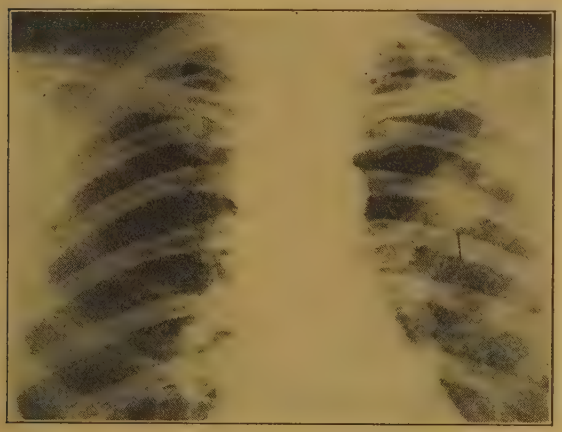

FIG. 1.—X ray examination, January 11, 1939, showed a circumscribed area of infiltration in the left lung behind the second rib and in the second interspace.

males and five were females. All thirteen of Fried's cases were males. Hamilton and Wexler (5) reported a case in 1940 occurring in a male. It may easily be seen from these figures that the concomitant occurrence of pulmonary tuberculosis and carcinoma of the lung is much more common among males.

Case Report

E. H. L., a white male, aged fifty-one, whose occupation was coffee roasting, first came under observation on December 13, 1940, complaining of productive cough, hemoptysis, loss of weight, and easy fatigue. The family history was irrelevant. He had measles and pertussis when a child.

In February, 1938, he had a slight cough with pain in the upper part of the left chest. A diagnosis of pleurisy was made and the patient's chest was strapped to relieve the pain. He had no elevation of temperature at this time. In November, 1938, he again had an attack of pain in the left chest. On January 11, 1939, an x ray examination (Fig. 1) was made of the chest and a diagnosis of pulmonary abscess was made. The sputum was negative for tubercle bacilli. On October 27, 1939, the patient began to spit blood and in February, 1940, he had pneumonia. He continued to expectorate blood and to have pain in the chest which became more severe and was constantly present.

The physical examination was negative except for the chest. The clavicles were prominent and there was retraction of the supraclavicular fossæ. The tactile fremitus was observed to be increased over the upper lobe of the left lung, and the left lung was dull to percussion from the apex to the fourth rib, anteriorly, and from the apex to the spine of the scapula, posteriorly. Harsh breath sounds with whispering pectoriloquy and coarse and medium râles were heard upon auscultation over the same area. No abnormal signs were noted upon examination of the right lung. The blood pressure was 106/70, the pulse 108, and the temperature 99.2°. There was no evidence of clubbing of the fingers or toes.

The sputum was positive for tubercle bacilli; the sedimentation rate[1] 25 percent, 44 percent, and 66 percent; erythrocyte count 4,440,000; leucocyte count 10,800; hemoglobin 80 percent (Dare); polymorphonuclears 59 percent; lymphocytes 30 percent; monocytes 3 percent; eosinophils 8 percent; Kahn negative; and the urine was negative except for an occasional pus cell.

X ray examination of the chest, made on December 13, 1940, showed a moderate fibrosis throughout the

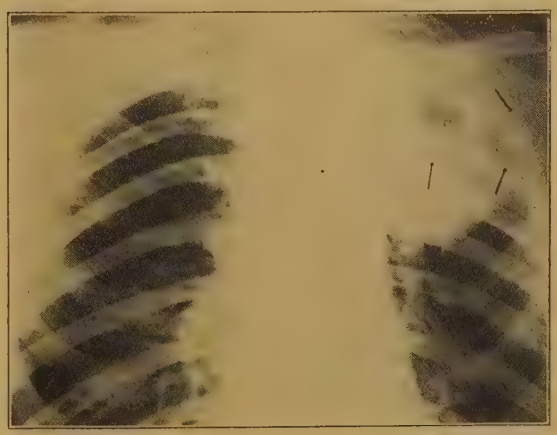

FIG. 2.—X ray examination, December 13, 1940, showed an infiltration involving the upper lobe with an area of cavitation presenting a fluid level in the first and second interspaces. A portion of the third left rib was eroded.

right lung. An infiltration was present throughout the left upper lobe with a large cavity presenting a fluid level in the first and second interspaces. A portion of the left third rib was eroded (Fig. 2). X ray examination of the osseous system showed no evidence of hypertrophic pulmonary osteoarthropathy, nor were there signs of metastasis to the bones.

Because the x ray of the chest showed erosion of the third left rib, a tentative diagnosis of a malignancy complicating pulmonary tuberculosis was made. On

*From the Woodmen of the World Memorial Hospital.

[1]Morris's modification of Westergren's method; readings taken at one hour, two hours, and twenty-four hours (7, 8).

FIG. 3.—Low power magnification of a section of decalcified rib showed a squamous cell carcinoma invading and destroying the bony tissue.

February 1, 1941, a section of the involved rib was removed for tissue study. The microscopic report made by Dr. J. M. Moore was as follows: "Sections of decalcified rib show a rather cellular tumor invading and destroying the bony tissue. There is quite marked alteration in the size and shape of the cells and there are many cells in mitosis. Some areas of necrosis are present. Pathological diagnosis: Squamous cell carcinoma, grade three." (Figs. 3 and 4).

Because of the extent of the pathological processes no form of active treatment was deemed advisable.

The condition of the patient became progressively worse and he died on October 28, 1941, after having returned to his home in Kentucky.

Specimens taken at postmortem were sent to us for microscopic examination; however, data concerning the gross structure could not be obtained since no record was kept by the physician who performed the autopsy. The following report was made on the microscopic findings by Dr. A. O. Severance:

Sections of the spleen showed a moderate congestion of the sinusoids with considerable hemosiderin throughout and a slight infiltration of polymorphonuclears and plasma cells. The liver cells had an increased amount of bile pigment while the kidneys revealed congestion of the glomeruli, cloudy swelling of the tubules and an occasional fibrosed glomerulus. Sections of the lungs showed no definite evidence of tuberculosis although there was marked fibrosis and atelectasis present. The pleura was replaced by dense fibrous adhesions. Foreign body giant cells were seen clustered about deposits of calcium and cholesterol crystals. In other areas small groups of tumor cells were present in the alveoli while large masses and sheets of these cells were in many portions of the lung. In one location the tumor cells had penetrated the pleura and had invaded the skeletal muscle. These cells contained a finely granular eosinophilic cytoplasm and varied greatly in size and shape. The nuclei were irregular and varied in their staining characteristics. Many areas of keratinization with an epithelial pearl were found. Mitotic activity was fairly abundant. This neoplasm was a grade two squamous cell carcinoma arising from the bronchial epithelium.

Pathogenesis of Concomitant Tuberculosis and Carcinoma

Tuberculosis and primary carcinoma may occur in the lungs in one of two ways. They may occur together purely accidentally or one may predispose to the occurrence of the other. Since carcinoma is a debilitating disease it may lower the patient's resistance sufficiently to reactivate a primary tuberculous lesion or cause an old fibrotic lesion to become active (3). On the other hand, whether tuberculosis may initiate a malignant process has been the subject of much discussion.

Many articles in the literature report the origin of a carcinoma in a tuberculous cavity or tuberculous scar. However, Fried (3) is of the opinion that the cancer cells do not originate *in situ* but in the bronchial wall and invade the cavity or tuberculous scar. This process is a spread of malignant cells from the bronchus to line the tuberculous cavity. Since the tuberculous cavity is lined with scar tissue it is incapable of producing epithelial cells. Because a tuberculous cavity is invariably connected with a bronchus, it is logical to believe that the epithelial cells lining the bronchus

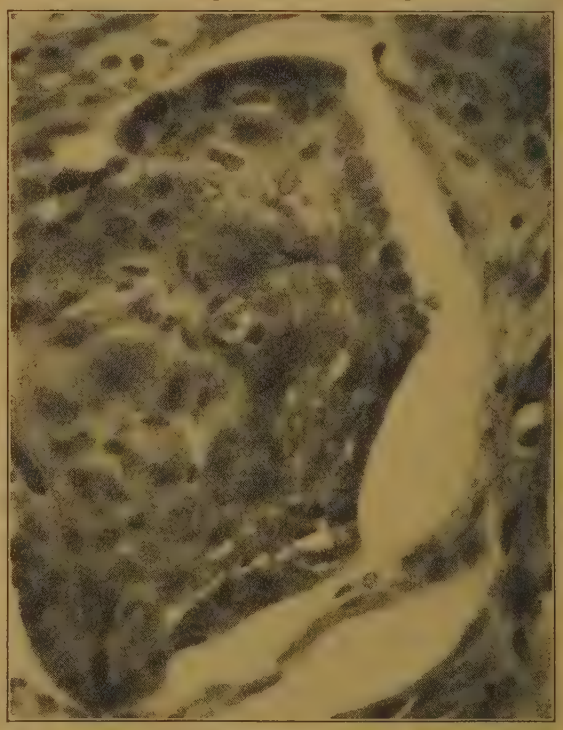

FIG. 4.—High power magnification of a section of the tissue removed from the left third rib showed the great variation in size and shape of the cells of the tumor. Many mitotic figures were observed.

become malignant and invade the cavity producing a lining of abnormal epithelial cells. When these abnormal cells line the cavity walls, they begin to invade and destroy the normal pulmonary tissue.

In making a diagnosis of carcinoma of the lung in conjunction with pulmonary tuberculosis three outstanding signs may often be observed. Excruciating pain in the chest is suggestive of carcinoma, for tuberculosis rarely causes such intense pain in the chest. Erosion of the ribs is also a sign which would lead one to suspect the presence of pulmonary carcinoma. Pulmonary actinomycosis, however, frequently causes erosion of the ribs and must be differentiated from pulmonary tuberculosis because of the frequent occurrence of acid-fast fragments of the organism simulating the tubercle bacillus (4). Hypertrophic pulmonary osteoarthropathy is a more or less frequent manifestation of pulmonary carcinoma and arthritis may be the complaint that first brings the patient to his physician (5, 6).

Summary

1. The concomitant occurrence of primary carcinoma and pulmonary tuberculosis is uncommon.

2. Theories of the pathogenesis of these two morbid conditions occurring together are presented.

3. Three signs which lead one to suspect a pulmonary neoplasm are the following: excruciating pain in the chest, the presence of a parenchymal pulmonary lesion in which erosion of a rib occurs, and hypertrophic pulmonary osteoarthropathy.

4. A case of primary carcinoma and tuberculosis of the lung was presented.

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SPASMUS NUTANS

With Case Report

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Preventive medicine labors hardest, yet receives least recognition of its achievements. Its progress should be recorded. Spasmus nutans is one of its triumphs.

In 1918, spasmus nutans was reported as occurring once in every seven hundred infants coming for treatment in New York City. Herrman (1) in this same classical discussion gives forty-six references with reports from various large cities of America and Europe. Yet since that time, there are available but five American and fourteen European references. Cronin (2) felt that the paucity of literature was due to cases not being recognized. However, from personal communication with men in many large cities the conclusion is rather that spasmus nutans is a rarity. This situation has been brought about through modern hygiene.

Spasmus nutans is a distinct clinical entity, limited to infants, characterized by head nodding, eye nystagmus, and a tendency to cock the head to one side. The first two symptoms are the most common.

Head movements are usually the first manifestation. The noddings are regular and rhythmical, varying in rate from 20 to 120 per minute. The direction may be horizontal, vertical, or, as in our case, rotary. Excitement or intercurrent infection aggravates the motion. Sleep or blindfolding the eyes (after the patient has become accustomed to the blindfold) will stop the motion.

Nystagmus may precede head movements and may persist after them. One or both eyes may be involved. The direction of the motion may vary during the disease—horizontal, vertical, or rotary—with the rate between 130 and 300 per minute. If the child fixes at a close distance, motion is more distinct in the eyes; but head movements tend to cease.

Almost fifty percent of these children have a tendency to cock their heads to one side, at the same time looking out of the corners of their eyes, giving a distinct "coy expression". This tendency may also precede the head movements and persist beyond them.

Motion of other parts of the body has been occasionally reported. For several days, our patient waved both hands and arms to the same rhythm of his head.

Spasmus nutans is more common among negro children. It is distributed equally among the sexes between the ages of four and fourteen months. The onset occurs during the winter months. The duration is from two to twelve months. The prognosis is good; there are no mental or physical sequelæ. The regression is spontaneous, usually during the following summer. There may be a mild recurrence of symptoms in the winter. Rickets is often a concurrent condition.

Differential Diagnosis

The diagnosis, with head nodding, nystagmus, cocking of the head, in an infant between four and fourteen months, is relatively simple, especially as the physical, neurological, and laboratory examinations are otherwise negative. Other conditions may be concomitant but not difficult to rule out. The fundi are normal. Blindfolding stops the head nystagmus. Syringing of the

ears has no effect upon the nystagmus. Eclampsia nutans occurs in attacks with partial or complete paralysis. The trunk becomes involved in the movements. Congenital head shaking with nystagmus is a progressive familial disease, present at birth, and persisting throughout life. The onset of nystagmus and head rolling are simultaneous, the head movements compensating for the eye movements (always bilateral). Rickets is a very common deficiency and should not confuse the diagnosis.

Pathogenesis

Light is the important factor. Almost all of the cases occur in city dwellers living in dark, poorly ventilated rooms. The histories always tell of the baby being kept in a dark room or poorly lit corner. The mother is often afraid that the light will hurt the baby's eyes. Herrman (1) investigated personally fifty-five cases to prove these findings. So it has been with other observers and with our patient. Thomson (3) correlated the incidence with hours of available sunlight as seen by the onset of the disease during the winter months. Raudnitz (4) experimentally produced similar head shaking with nystagmus in puppies by placing them in a dark cage at or shortly after their birth. However, if they were placed in the same cage after the age of two months, these symptoms did not develop. Oddly enough, this coincides with the infant's comparative age (X7=14 mo.). Pathologically the affected animals showed no demonstrable changes.

Herrman (1) notes that "the causative factors act only at a certain stage in the development of the nervous mechanism which controls the associated movements of head and eyes". Aldrich (5) explains the development as the "fibrous connection between the visual areas of the cerebral cortex, and the fovea centralis that is necessary to perfect vision does not fully develop until after birth and only gradually becomes medullated and fit for function. Thus, with the maturity of the communication of the central and peripheral neuron binocular adjustment, judgment of fixed objects, spatial relation, including station, is acquired". Therefore, any interference with either the development or the nutrition of the nerves will cause an immaturity. The normally unstable infant's coordination of head and eye movements becomes exaggerated.

Here, then, we have both factors of development and nutrition involved. First, the stimulating factor of light on visual purple metabolism is diminished to absent. Second, the probability of a vitamin A deficiency is present. (The relationship of vitamin A to the foregoing has been well established (6)). With the concomitant deficiency of the other fat soluble vitamin D, this is entirely feasible. The result is a delayed maturation with an incoordination of head and eye movements—head nodding with nystagmus.

Today, through modern teachings and hygiene, mothers are taught the benefits of fresh air, sunshine, and vitamins. These factors are present during the developmental period, and the winter babies no longer have this affliction.

Treatment

The disease is self-limiting. The therapy recommended is of a supportive nature. Hygienic surroundings, fresh air, sunshine, accessory vitamins, and therapy for any associated conditions will suffice. No intensive supplementary therapy has been successful in speeding the recovery.

Case Report

C. S. (31789).—The patient, a colored male, aged eight months, was first seen in the outpatient clinic on December 28, 1940, with the complaint of "bug in left ear". The mother stated that the child pulled at his left ear, shook his head and held it cocked toward the left. There was no history of any recent previous illness. Physical examination bore out the mother's statements. Nothing was found in the ear canal; both drums were red; myringotomy revealed no pus. The patient's temperature was 100° F.

On January 17, 1941, the child was brought in again. This time the head nodding was accompanied by nystagmus. The temperature was 99° F., and ear drums were still red. On January 22, 1941, the temperature was 101.4° F.; both ears were draining pus; nystagmus and head nodding were moderately severe. On January 23, 1941, the temperature was 104.4° F. Nystagmus and head nodding were severe, and were accompanied by rhythmical waving of hand and arms. The left ear was draining pus, and there was a slight swelling over left mastoid region. The patient was admitted to hospital (14643).

His past history showed that he was a normal, full term infant, with normal feeding and developmental history. He had had no immunizations. At the age of three months, he contracted pneumonia, followed shortly thereafter by a diarrheal attack. His family history showed two siblings living and well. A history of any familial diseases was denied by mother.

Physical examination: This revealed an acutely ill, well developed male negro child. His head was held cocked to the left, while there was a concomitous rapid rotary motion to the same side. His eyes showed a rapid lateral, bilateral nystagmus. Arms and hands were waved rhythmically with the head motion. There were mild skull bossa. The pharynx was moderately injected. The left ear was draining pus. Over the left mastoid region was a tender red swelling. The lung fields were clear to percussion and auscultation. The heart showed only a tachycardia. No masses or hernia were noted in the abdomen, and the genitalia were normal. A neurological examination was essentially negative other than noted. Temperature 104.4° F. The impression on admission was of a labyrinthitis secondary to a mastoiditis.

Clinical course.—Sulfathiazole therapy was instituted. X ray study showed no evidence of mastoid involvement. Eye fundi were normal. By the second day arm movements had stopped, and head nodding had regressed in tempo. It was noted that the head motion stopped during sleep. Ear irrigations had no effect on the nystagmus. Fixing the child's attention on a rattle tied over his head stopped the head nodding. As the infection cleared the rate of nystagmus slowed. The head motion, also, was much slower and would frequently stop. On February 8, 1941, the infection in the left ear flared up. Myringotomy revealed pus. Head nodding and nystagmus again became severe.

At this point the diagnosis of spasmus nutans was first made. A supplementary history from the mother

revealed that the child had been cared for by a neighbor. The baby was kept on an adult bed in a far dark corner, as it was thought the light was "bad for him". Caille's test (7) was performed. The child's eyes were blindfolded, and the head nodding and cocking stopped. Removal of the blinds brought about immediate return of motion. The child was kept in the hospital until March 30, 1941, because of a blood reaction to sulfathiazole therapy. His general treatment was supportive. On discharge he had gained three pounds eleven ounces. He was playful and active. Eye nystagmus was bilateral, fine and constant. Head nodding occurred only when he became irritated. There was a tendency to cock the head toward the left.

Laboratory procedures.—X rays of skull showed normal mastoids and sella turcica. Admission urine was normal. Admission blood count: red blood cells, 3,650,000; hemoglobin, 74 percent; white blood cells, 11,000; polymorphonuclears, 72 percent; lymphocytes, 28 percent; spinal fluid was normal; blood calcium 10.7 mg. percent. Kahn and Kline tests were negative. Ear culture on admission showed hemolytic streptococci; on the second flareup which occurred on Feb. 8, 1941, it showed Bacillus pyocyaneus.

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Children's Hospital

HORMONES AND VITAMINS IN RELATION TO THE EYE*

Oculofacial Physiognomy and Personality in Relation to the Endocrines

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Looking backward and reviewing the various systems and the categories to which clinical subjects were assigned, we note that the problem, if indeed there was any, was approached almost exclusively from the angle of body form, fat distribution, height, weight, and breadth proportion and accordingly, to assumed racial types with nosological connotations or to equally hypothetical and debatable disease tendencies or personality trends which were indicated by a predominance of the region of the forehead, cerebral, of the mid-face, respiratory, or the mouth, lips, and chin, gastrointestinal.

However, it would appear that too many physiognomic cooks spoil the broth and that we are still groping for the key to the personality of the patient. A very definite and practically important step forward toward the solution of this age-old puzzle was registered when certain striking—not to say dramatic-body conditions were noted in disease of the endocrine glands and perhaps even more when these conditions represented a change from previously noted and fairly normal conditions. These somatic abnormalities concerned, mainly, height and weight, the bony structure of the extremities, fat and hair distribution, the gonads (anatomy and function), and secondary sexual characteristics. Soon it became possible to establish rather definite clinical dyscrinoid types in such syndromes as adiposogenital dystrophy, various clinical forms of dwarfism (nanism) and of excessive growth (gigantosomia). In many of these disturbances there were ocular symptoms and, especially, alterations in topography and in the relations of orbit to eyeball resulting in striking physiognomic pictures, e.g., the visage, as the facies, of myxedema, acromegaly, hyperthyroidism, Mongolian idiocy.

The topography of the face, including orbits and globe, has been a subject of study in which anthropologists seem to have been more interested than physicians engaged in eye work. At least, the former have contributed most of the data at our disposal. One of the few contributions by ophthalmologists was that of Stilling of Strassburg who, in the 1880's, was convinced that there was a definite relationship between orbit form and orbit dimensions on the one hand, and the refraction form of the eyeball, on the other. He studied the data and applied the theory, especially in relation to myopia, and came to the conclusion that this form of axial ametropia was associated with a low position of the trochlea (chamaiconchia) due to a low, wide orbit. This anatomical peculiarity allowed the superior oblique to exercise decided pressure of the eyes in looking downward and converging, as in all near work, adding this mechanical factor to that already well established in theory and practise, of traction and of pressure on the globe by the internal and the external recti, respectively in the progressive elongation of the globe which determines not only the refraction but the entire habitus of the myopic eye. In the opposite condition, i.e., that of a high and comparatively narrow orbit and correspondingly high location of the trochlea (hypsiconchia) myopia was extremely uncommon, nay, exceptional. The physiognomic correspondences to these orbital individualities was shown by the short, broad face and skull of the first category (with an index of 90 or less), and, on the other hand, the long, narrow face with an orbital index over 85.

We may say, to vary a well known phrase, that the endocrines are the glands indicating, as well as regulating, personality. In the category or bracket of structure, anatomy, the facial connotations have rested mainly on clinical observations of disease types of endocrine dysfunction. It would be of interest, and probably not without practical value, if we could establish some physiognomic norms of face, orbit and eyeball build in normal, everyday individuals, of special endocrine type. Something like what Stockard has done so strikingly and suggestively with the animal facies in his study of various mammals.

In previous publications I have ventured the convic-

*Nineteenth article in the series.

tion that there is at least one endocrine type, the pituitary, and that persons of this type have not only very definite gifts, talents, tendencies, in the choice and pursuit of profession, trade, and avocation, but also very marked and definite physical and mental qualities. With this a definite face and orbit form is associated so regularly and frequently that coincidence may well be ruled out.

The Pituitary Face

The pituitary eye is enophthalmic, meiotic, small, round (emmetropic or hypermetropic). These persons are subject to eye strain, migraine (?), and to systemic manifestations of vagotonia (respiratory, asthma, etc.) intestinal, gastric ulcer, constipation, hemorrhoids, fistula, dysmenorrhea, etc. This small round eye has a tough, comparatively inelastic sclera favoring increased intraocular tension, is covered by comparatively tight fitting, tough, and thick lids, a peculiarity which may be not without significance for ophthalmic operations and plastic surgery. The question of glaucoma is a thorny one in its relation to vagotonia and sympathicotonia, respectively, as in so many others. The etiological factors, especially the emotional, the clinical features (mydriasis, etc.), and the therapeutic value of vagotonic medication (pilocarpine, eserine, and other meiotics), heat, rest, sleep, morphine, all point very suggestively toward a sympathetic irritation. The same is true of another clinical entity or syndrome which, similarly, is associated with eye symptoms strongly suggesting sympathicotonia. Hyperthyroidism offers some striking if not definitely analyzed and explained analogies with glaucoma. And this is, in all three panels of etiology (emotion), symptomatology (ocular physiognomy of sympathetic irritation), and therapy (substitution therapy and/or removal of the source of sympathotonic hormone).

A study of nearly one thousand photographs of individuals exhibiting these characteristic features of the pituitary eye has convinced me that it is associated with equally characteristic peculiarities of skull form, face form, and especially of the orbit and its neighboring "paranasal" sinuses, socalled. We note that with a wide spacing of the eyes (hypertelorism) there is an equally marked broadness of the entire face from brow and forehead to chin. With this there is associated, almost invariably, a decided deepening of the interspace between the eyebrows and frontal bosses, of that between the alæ nasi of the philtrum of the upper lip, more than a suggestion of one midway of the lower, and a very definite cloven chin. In fact one gets the impression that the entire face is on the way to cleavage into two symmetrical halves.

The nose, itself, is broad, straight, and tending to spread into what has been called the duck-bill type, besides being definitely of the pug, snub, or upturned, tip-tilted variety. Such a nose speaks, as you might say, for a series of ample accessory ventilating cavities in keeping with the broad face. Its more or less proud possessor will never suffer from what is popularly known as "sinus", and which, for the rhinologist, has implications with chronic nasal catarrh, septal deviation, paroxysmal rhinorrhea and other obstacles to good respiratory air-ways and an ample supply of oxygen. The lips are generally full, the neck massive, the ears, closely applied to the side of the head.

Going on, now to the hirsute adornment of face and skull, we note invariably heavy, often shaggy and bushy protruding eyebrows which may meet in the midbrow line and give, as a result, a continuous single eyebrow from one temporal region to the other. The hair of the head is likewise luxuriant and has striking distributional topographical features. In the mid-line of the forehead it almost invariably extends downward toward the root of the nose, producing a decided peak. The same tendency toward a forward and downward growth is noted at the temples and in front of the ears. At the back, the thick mass of hair instead of thinning out as it nears the base of the skull, is preserved and runs across the nape of the neck in a straight or but slightly curved line. The total effect is that of a heavy wig or, more correctly, of a fur cap, as the Germans have noted in calling it the *"Pelz Kappe"*.

To revert to the eye, this organ, small, hyperopic and situated in an unusually roomy orbit is markedly enophthalmic. Exophthalmos in a subject of this pituitary type is almost invariably an indication of pathology, whereas a certain degree of prominence of the globe, amounting to what we might call physiological exophthalmos [cf. "physiological excavation" of the optic disc] is the rule in myopes and those of the thyroid type. The gaze fixation is steady, the glance (binocular directional motion) is slow, infrequent, as are the movement of the lids in involuntary winking and in intentional opening and closing of the lid-fissure. These wide spaced eyes have a comparatively remote near point of accommodation and convergence. They are built for distance, and for sustained long range work, not for close, rapid activity such as that for which the myopic eye seems built to order.

In a recent study of the eyes in relation to physical constitution and the autonomic nervous system (*Diseases of the Eye, Ear, Nose and Throat*, January, 1942) Dr. Helen B. Pryor reports her findings in a group of normal adolescent girls, from the public schools of Oakland, Cal., who were, respectively, slender built and myopic on the one hand, and hyperopic and broad-built on the other. Her interesting and striking data show that the broad built, broad-headed girls with greater pupillary distance (hypertelorism) showed consistently lower ocular excursions both for abduction and for adduction than the mean. They had to apply more converging power to focus for near objects than the slender built myopes.

These findings, as far as they go, corroborate my own data based exclusively on studies of normal adults, male and female, in definite categories of industry, professional life and avocations. The individuals studied were almost without exception business executives, bankers, and brokers, engineers, selling and advertising agents, officers of the Army, the Navy and the Merchant Marine, or, again, athletes, boxers, wrestlers, golfers, billiard experts and masters of chess play.

What was the connecting link between these disparate and apparently unrelated occupations and trends and the personality characteristics shown so strikingly in the pituitary facies which must have played a great part in the suitability for, and also probably in the choice of a lifetime occupation or a favorite sport? This may well form the subject of a later, detailed presentation.

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News Items

Harvey Lecture.—The sixth Harvey Lecture in the current series being given by the Harvey Society in affiliation with the New York Academy of Medicine, will be presented on Thursday evening, March 19th, by Albert R. Behnke, Lieutenant Commander, Medical Corps, U. S. Navy. His subject will be "Physiological Studies Pertaining to Aviation Medicine and Deep Sea Diving".

Friday Afternoon Lectures.—The sixteenth lecture of the series will be given on March 20th by Dr. William S. Langford, clinical professor of psychiatry, College of Physicians and Surgeons, Columbia University. His subject wil be "Psychopathological Disorders in Childhood".

Wellcome Prize Award.—The Association of Military Surgeons announced recently that the Wellcome prize for 1941 was awarded to Lieutenant A. R. Behnke, Medical Corps, United States Navy, at the annual meeting of the Association held in Louisville, Ky. In 1940 this prize was won by Captain Lucius W. Johnson, also of the Medical Corps of the Navy.

James M. Anders Lecture.—David Bruce Dill, Ph.D., director of the fatigue laboratory at Harvard University, and Dr. Arlie V. Bock, Henry K. Oliver professor of hygiene, Harvard University, will present the James M. Anders Lecture before the College of Physicians of Philadelphia, on April 1st. Their subject will be "Fatigue".

Transportation Exhibit at the Academy.—An exhibition is being held in the library of the New York Academy of Medicine, showing methods of transporting the sick and wounded before the days of the motor. This exhibit was arranged by Dr. Sigmund Epstein and will be open to the public until April 1st.

American Psychoanalytic Association.—The first meeting of this association will be held in Boston, May 17th to 20th, under the presidency of Dr. Karl Menninger, of Topeka, Kansas. An interesting feature of the program will be a round table discussion on "Applications of Psychoanalysis to the National Emergency". The program also provides for an all day joint meeting of the association with the American Psychiatric Association.

Lectures to the Laity.—The fifth lecture in the current series being presented at the New York Academy of Medicine, will be given on Thursday evening, March 26th, by Dr. Norman Jolliffe, associate professor of medicine, New York University College of Medicine. His subject will be "The History of Vitamin B". The sixth lecture will be given on April 23d by Dr. A. J. Carlson, Frank P. Hixon professor of physiology, emeritus, University of Chicago, whose subject will be "The Newer Knowledge of Nutrition".

American Academy of Orthopedic Surgeons.—At the recent annual meeting of this organization, Dr. Marius N. Smith-Petersen, Boston, was named president-elect and Dr. Carl E. Badgley, Ann Arbor, Mich., was installed as president. Other officers were elected as follows: Dr. Robert E. Funsten, Charlottesville, Va., vice-president; Dr. Eugene B. Mumford, Indianapolis, treasurer; Dr. Rex Diveley, Kansas City, Mo., secretary; Dr. Philip Lewin, Chicago, librarian. Next year's meeting will be held in Chicago.

Biggs Memorial Lecture.—The Hermann M. Biggs Memorial Lecture, which is held annually in Hosack Hall at the New York Academy of Medicine, under the auspices of the Committee on Public Health Relations, will be delivered this year on Thursday, April 2nd, at 8:30 p. m., by Dr. James S. McLester, professor of medicine at the University of Alabama, chairman of the Council on Foods and Nutrition of the American Medical Association, and chairman of the subcommittee on Medical Nutrition of the National Research Council. This lecture is open to the general public and the subject will be "Nutrition and the Nation at War."

Bulkley Lecture.—The annual Bulkley Lecture on cancer of the cervix and fundus uteri will be given at the New York Academy of Medicine, on Friday evening, March 27th. This will consist of a panel discussion and the following are the participants: Dr. George Gray Ward, chairman, professor emeritus, obstetrics and gynecology, Cornell University Medical College; Dr. Joe V. Meigs, chief of the gynecological service, Massachusetts General Hospital; Dr. Howard C. Taylor, Jr., associate professor of gynecology and obstetrics, New York University College of Medicine; Dr. Charles A. Behney, gynecologist to the Radiologic Clinic, Philadelphia General Hospital. This lecture constitutes the seventeenth Friday afternoon lecture.

Public Lectures on Modern Genetics.—A series of three public lectures under the general title of "Our Ancestors, Ourselves, Our Descendants" is being presented at the Woman's Medical College of Pennsylvania, Philadelphia. The first lecture was delivered on January 23rd by Professor R. Ruggles Gates, of the Marine Biological Laboratory at Woods Hole, Mass., and the second will be delivered on March 27th by Dr. Laurence H. Snyder, of Ohio State University, whose subject will be Heredity and Modern Life. The last lecture in the series will be given on April 24th by Professor Ernest A. Hooten, of the department of anthropology, Harvard University.

Psychologists to Meet in St. Louis.—The seventeenth annual meeting of the Midwestern Psychological Association will be held in St. Louis, Mo., May 1st and 2d, under the presidency of Dr. J. P. Porter. According to *Science*, the subject of Dr. Porter's presidential address will be "Psychology and the Functional Integration of Human Behavior." Dr. J. P. Nafe is chairman of the local committee, and the members of staff of the department of psychology of Washington University will act as hosts. Headquarters will be in the Hotel Statler, where all meetings will be held.

Contributions to Medical and Surgical Relief.—Announcement is made that during the month of February the sum of $44,701.46 had been contributed to further the work of the Medical and Surgical Relief Committee of America. Of that amount $17,456.91 was earmarked for relief work in America, and the remainder for use among the British, the Free Norwegians in Iceland, the Free French in North Africa, the Russians, and the Chinese. The largest individual donation was $7,500 from the Commonwealth Fund. Mrs. Rogers Balcom, executive chairman of the committee, donated $5,500 and the American-Scandinavian Field Hospital Unit and the J. M. Anderson Manufacturing Company, Boston, Mass., each donated $1,500.

Personal.—Rear Admiral E. R. Stitt, Medical Corps, U. S. Navy, retired, was awarded the Theobold Smith gold medal of the George Washington University at the eighth annual meeting of the American Academy of Tropical Medicine.

René J. Dubos, Ph.D., of the Rockefeller Institute for Medical Research, New York, delivered the fifty-first Mary Scott Newbold lecture at a meeting of the College of Physicians at Philadelphia, held on Wednesday evening, March 4th. His subject was "Origin, Nature, and Properties of Gramicidin."

Mrs. Edith H. Quimby, physicist at the Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, since 1932, has been awarded the gold medal of the Radiological Society of North America.

Dr. Francis S. Smyth has been appointed dean of the University of California Medical School, San Francisco, succeeding Dr. Langley Porter, who retired in 1939.

Dr. Julius Hess, fomerly professor of orthopedic surgery at the University of Vienna, has been appointed attending orthopedic surgeon in charge of the orthopedic service at Montefiore Hospital, New York.

Dr. Elise S. L'Esperance is in charge of the new cancer prevention clinic recently opened at the Memorial Hospital, New York.

Dr. Leona Baumgartner has been appointed director of the Bureau of Child Hygiene of the Department of Health of the City of New York.

Dr. John Peters, professor of internal medicine, Yale University School of Medicine, delivered, March 6th, the second lecture in the series of six lectures on blood chemistry being given at Mt. Sinai Hospital, New York, in celebration of the ninetieth anniversary year of the hospital. Dr. Peters's subject was Serum Proteins in Health and Disease.

Dr. Harry R. Hoffman, Illinois State alienist, has been appointed chairman of the Illinois Psychiatric Research Council.

Dr. Hiram W. Kostmayer, professor of clinical gynecology and director of the department of graduate medicine, Tulane University, New Orleans, La., has been appointed acting dean of the medical school during the absence of the dean, Dr. Maxwell E. Lapham, who has gone to Washington, D. C., for special duty with the Bureau of Medicine and Surgery, U. S. Navy.

Dr. Amos Christie, assistant professor of pediatrics at the University of California Medical School, San Francisco, has been appointed assistant director of medical and health service of the American Red Cross, with headquarters in Washington, D. C.

Dr. Otis Caldwell, general secretary of the American Association for the Advancement of Science, delivered an address on "Textbook Science" at the meeting of the American Institute, held in New York on February 26th.

Dr. Albert F. Blakeslee, of Cold Spring Harbor, N. Y., delivered the annual Phi Beta Kappa lecture at the College of Wooster, on Thursday, February 19th. His subject was "Personality in Relation to Science and Society."

Dr. Arthur E. Soper, formerly first assistant physician at Pilgrim State Hospital, Brentwood, Long Island, has been appointed superintendent of Kings Park State Hospital, succeeding the late Dr. Charles S. Parker.

Dr. Edgar D. Adrian, professor of physiology at Cambridge University, England, delivered the seventh annual Hughlings Jackson memorial lecture of the Montreal Neurological Institute on February 27th, his subject was "Sensory Areas of the Brain". Dr. Adrian received the Nobel Prize in Medicine in 1932.

Dr. Thomas A. C. Rennie, formerly assistant psychiatrist at Johns Hopkins Hospital, Baltimore, has been appointed medical director of the Payne Whitney Psychiatric Clinic, New York, succeeding Dr. Gerald R. Jamieson who resigned recently to enter private practice.

Dr. Louis N. Katz, director of cardiovascular research at the Michael Reese Hospital, Chicago, is giving a course in electrocardiographic interpretation for graduate physicians. The course started on February 18th and classes will be held weekly for the next twelve weeks.

Neuropsychiatric Institute.—The fifth interstate psychiatric institute will be held in St. Joseph, Mo., March 22d to April 4th, under the sponsorship of the American Psychiatric Association through its committee on psychiatric and medical education and financed in part by a grant from the Rockefeller Foundation. Lectures will be presented on various subjects in the field of neuropsychiatry and clinical material will be presented.

Philadelphia County Medical Society.—Dr. David T. Smith, professor of bacteriology and associate professor of medicine, Duke University School of Medicine, was the guest speaker at a stated scientific meeting of the Philadelphia County Medical Society, held on March 11th. The subject of his address was "Recent Advances in the Vitamin Field of Practical Importance in Therapy". There was a round table discussion on various phases of nutrition based on questions from the audience. Among those who took part in the discussions were Dr. Katherine O'Shea Elsom, Dr. Herbert T. Kelly, Dr. Waldo E. Nelson, Dr. G. Harlan Wells, Dr. John H. Willard, and Dr. Michael G. Wohl.

International Spanish Speaking Association.—The one hundred and fortieth meeting of the International Spanish Speaking Association of Physicians, etc., will be held on Friday evening, March 20th, at Pythian Temple, New York, under the presidency of Dr. J. M. Gershberg. The scientific program will consist of a symposium on "War Casualties and First Aid". The subject will be discussed by military and civilian surgeons from Washington, D. C., New York, and other cities as follows: Abdominal casualties, by Dr. F. W. Bancroft, Columbia University; evacuation casualties, by Dr. L. A. Salisbury, Col., Medical Inspector, Corps Area; civilian casualties, by Dr. C. W. Cutler, chairman of committee on Medical Preparedness; facial deformities, by Dr. J. Eastman Sheehan, well known plastic surgeon; dental casualties, by Dr. J. H. Harmon, Colonel, United States Army; parachute and air raid casualties, by Dr. H. E. Miller, Major, Chemical Warfare Service; tear and poison gas casualties, by Dr. Zile Hyde, Major, U. S. Public Health Service; psychiatric casualties, by Dr. I. W. Klisberg, diplomate, American Board of Psychiatry and Neurology. The guest of honor will be the Consul General of Cuba. Members of the medical profession are cordially invited to attend.

Section of Obstetrics and Gynecology.—A meeting of the Section of Obstetrics and Gynecology of the New York Academy of Medicine will be held Tuesday evening, March 24th. Dr. William E. Alsop will present, by invitation, cases of chronic inversion of the uterus and ovarian pregnancy. The papers of the evening are: End-results in cancer of the ovary, by Dr. H. C. Taylor, Jr., and Dr. A. V. Greeley; A followup evaluation of the Richardson composite operation for uterine prolapse, by Dr. Richard W. TeLinde, chief gynecologist, Johns Hopkins Hospital, by invitation. This paper will be discussed by Dr. Thomas C. Peightal and a general discussion will follow.

Discussion of Fractures.—At a meeting of the Section of Orthopedic Surgery of the New York Academy of Medicine, to be held Friday evening, March 20th, Dr. Halford Hallock will read a paper on open reduction and implantation of bone chips for united fracture of the femoral neck, with a report of five cases. Dr. Fred H. Albee will read a paper on ununited fractures, which will be discussed by Dr. Lewis Clark Wagner. There will be a general discussion.

Ocean Medical Society.—At the regular meeting of the Ocean Medical Society held in Brooklyn, January 19th, the program consisted of a round table discussion on the Menopause. Those who took part in the discussion were: Dr. Raphel Kurzrok, Dr. Irving H. Pardee, Dr. Meyer M. Harris, Dr. Raymond L. Zweiner, and Dr. Charles Birnberg.

Clinical Society of Hospital for Joint Diseases.—At the annual meeting of this society, held on December 2d, the following officers were elected for 1942: President, Dr. Irving Claman; president-elect, Dr. Martin G. Vorhaus; recording secretary, Dr. Sidney J. Ritter; corresponding secretary, Dr. William M. Unobsky.

Fracture Day at Lenox Hill Hospital.—The seventh annual fracture day of the New York and Brooklyn Regional Fracture Committee of the American College of Surgeons, was held at Lenox Hill Hospital, New York, on Saturday, February 28th.

Clinical Society of Reconstruction Hospital.—At a stated meeting of the Clinical Society of the Reconstruction Hospital, New York, to be held on Wednesday evening, March 18th, cases as follows will be presented:

Dr. Henry H. Ritter: Amputation of mid-forearm following severe third degree burns, with result eight years postoperative; Amputation of mid-calf with resection of entire fibula for osteomyelitis following severe burns, with result three years postoperative; Operation for repair of severed nerves, muscles and brachial artery, with result two weeks postoperative. Dr. Walter D. Ludlum, Jr.: Two cases of painful amputation stumps of fingers; Painful amputation stump of leg, revision, with result five and a half years postoperative. Dr. David Goldblatt: Amputation of thigh following compound fracture of femur with thrombosis of femoral artery, with result six and a half years postoperative; Amputation of leg following compound dislocation of tarsus with gangrene, with result seven years postoperative. Dr. Ernest W. Lampe: Amputation of leg following fracture of tibia and fibula, with result two months postoperative. Dr. David Goldblatt is chairman of this society.

American College of Chest Physicians.—A meeting of the New York State Chapter of the American College of Chest Physicians was held at the Hotel Biltmore, New York, on January 23d. Dr. Nelson W. Strohm was chairman at the morning session. Dr. Louis H. Clerf, professor and director of the Department of Bronchoscopy, Jefferson Medical College and Hospital, Philadelphia, Pa., read a paper on Tracheobronchial tuberculosis, which was discussed by Dr. John Devereux Kernan, professor and director of the Department of Bronchoscopy, College of Physicians and Surgeons, Columbia University and Presbyterian Hospital, New York. Dr. Julian Johnson, director of the Department of Thoracic Surgery, University of Pennsylvania Hospital, Philadelphia, Pa., read a paper on Total pneumonectomy, which was discussed by Dr. Samuel Olcott Thompson, associate professor of surgery, New York Medical College. The guest speaker of the morning session was Dr. Samuel J. Kopetzky, medical director, Selective Service Administration for the State of New York, whose subject was Medical Preparedness. At the afternoon session Dr. James S. Edlin presided as chairman. Dr. Henry K. Taylor, director of the Department of Radiology, Welfare Hospital, New York, read a paper on the rôle of the radiologist in the diagnosis of diseases of the chest, which was discussed by Dr. Bart R. Young, associate professor of radiology, Temple University Medical School, Philadelphia, Pa. This was followed by a chest x ray conference.

Textbook on War Gases

Protection Against Gas, a textbook on war gases to be used for instruction of public employees and volunteers enrolled in the various groups of the United States Citizens' Defense Corps, has been issued by the U. S. Office of Civilian Defense. The book was prepared by the War Department under the direction of the Chief of Chemical Warfare Service, U. S. Army, with suggestions by the National Technological Civil Protection Committee, a special advisory committee of engineers. The section on "First Aid Treatment of Gas Casualties" was prepared with the assistance of the Medical Division of the Office of Civilian Defense.

It is stated that, although war gases have been used in only one instance in this war, so far as is known, it is essential that thorough preparation be made to deal with them. Several groups of state and local officials have already had training in the Civilian Defense Schools conducted by the Chemical Warfare Service at Edgewood Arsenal, Maryland. Graduates of this school are returning to their homes to instruct others in identification of gases, measures for protection and methods of decontamination.

The seventy-five page manual contains descriptions of the principal gases, their effects and the first aid measures to be used in the care of persons who have been subjected to gas attack. Methods of individual protection, which include the use of masks and wearing of protective clothing, and methods of collective protection such as use of gas-proof shelters and methods of decontamination are described. There is a chapter on the protection of animals, especially horses and homing pigeons.

INDUSTRY'S HEADACHES—THE CURE

F. ALBERT DONLAN
Metuchen, N. J.

The Workmen's Compensation Act was the first formidable manifestation of social legislation. Then followed an amendment in respect to the aggravation of a pre-existing condition. More recently, an aroused public consciousness, clinical and technical groups, have given much impetus to proposed social legislation regarding occupational hazards and diseases. Thus has industry, through the years, been primarily concerned with the importance of the progress of science and adversely with science's hazards and exposures that disorganize social and economic interests. The sociological value of modern industrial technology is nevertheless based on the fact that industry affords the humblest of citizens an array of goods and comforts which would otherwise be unavailable. With industry's demands accelerated by the progress of the era, a competitive economic system striving for more and better things at lower prices, the public attitude regarding social legislation, industry finds itself continuously entangled in a wide range of responsibilities that become each year more compelling and inescapable.

Public reaction and the combined efforts of clinical and technical groups have in the past year, more than ever, accentuated the demands for the enactment of social legislation in respect to liabilities relative to occupational exposures and diseases. Legislation demonstrates the inspirational value of discipline, an important asset in preventing social and economic disorganization. It behooves industrial groups to look forward toward the development of a comprehensive program, one not too complicated but simplified by a procedure of uniformity and coordination that will at once grasp the interests of public health agencies and assure the support of allied sciences. Such an endeavor would tend to lessen the likelihood of punitive legislation in respect to occupational diseases. The situation as it now confronts industry is an emergency of its own. The aim of preventive medicine in industry is the promotion of an economic equilibrium as it relates to the health of the employee, cost of production and profits to mutual interests.

Modern industrial designs are rapidly displacing the obsolete. It is not always an easy task to improve on methods that are known to be hazardous, especially in basic industry. Nevertheless, modern designs and methods have demonstrated repeatedly that primarily prevention is at its best when and where hazards are eliminated through technical ingenuity as it relates to designs, methods, installation of machines, kind and manner of tooling and when it reckons with the elimination of physical exposures in respect to strain, incident to lifting or the awkward handling of heavy weights. Hernia, joint and muscular, and strain in many plants have been reduced to negligible factors through wise planning and improved technique. The highest occurrence today is in basic industry and among unskilled labor.

Plants that are antiquated in design and lacking in facilities, as thousands are, will have to recast their ideas. A hasty survey of plants in respect to the procedures of a particular industry, would convince those who comprehend the situation or who understand perspective, as it applies to prevention, that it is the more obvious omissions that are responsible for the occurrence of accidents or which constitute the pitfalls. It is the ability to visualize the unforeseen that constitutes competence in the prevention and elimination of occupational exposures and diseases. There can be no great advances in preventive medicine unless there is a more widespread vigilance in respect to observation and the appreciation of cause and effect from the economic aspect. Any welfare policy to be worthwhile must in reality be an asset rather than an expenditure or an expedient. It can be made so by competent industrial physicians, industrial chemists and safety supervisors who are adept and intelligent enough technically to escape the routine which leads to the inevitable accident.

Many devices and schemes intended to prevent or eliminate injuries and diseases have failed and continue to fail. To promote industrial efficiency, idle time, caused by industrial hazards and diseases, must be redeemed and made productive through preventive medicine, notably industrial hygiene. Industry must be less concerned with the law of averages in respect to the incidence of disease and more with the capacity of the individual to produce without economic loss. There must be less reliance upon rules and more emphasis upon individuality to sustain averages and minimize labor costs. To accomplish this, employees must be adjusted to their jobs and educated to develop their own capacity without mental or physical strain. There must be leadership and teamwork and an orderly regrouping in respect to biological differences, mental and physical qualities and adaptability in order to heighten efficiency.

The realities of life as they affect adversely the interests of the worker cannot be minimized by statistics alone. Success in a public relations program in any given locality is only the current manifestation of an intelligence and interest that express good discipline and a more enlightened policy. Heavy or basic industry, generally speaking, reveals the highest percentage of laggards in respect to indifference and biased attitudes concerning occupational exposures and diseases.

Slowly and after costly experience industry has come to realize that it is economic waste for people to be idle because of preventable disabilities and impaired health. Where ruthless attitudes prevailed, experience has proved that a rise in productivity of labor depended as much upon the conservation of human resources as upon orders. The disparities formerly retarding a better economic system are gradually being ironed out. There still remains, however, occasion for more equitable attitudes, for our mutual advantage.

When humaneness becomes more manifest in industry's ramifications regarding ruthless attitudes, the wisdom of a public welfare program in respect to preventive medicine becomes enhanced through economic gains. The retarding factors of prevention, so manifest for years, culminated in a human force mightier

than material barriers. Determination and a demand for equity and a uniformity of interests adjudged to be more important for the conservation of human resources than the ability to pay liabilities due to omissions and commissions, are the virile factors usually behind the enactment of social legislation. A comprehensive program in industrial hygiene—accelerated by the combined efforts of clinical and technical groups, developed to the height of efficiency by a coordinating mechanism—is what industry needs for immediate benefits, uniformity and simplicity of application.

267 Amboy Avenue

GINSENG IN THE OLDEN TIME

The Honourable WILLIAM RENWICK RIDDELL
Toronto, Canada

The plant, ginseng, gensing, or gensim, known to Canadian backwoodsmen and Indians as gingshang, was a fairly reliable source of revenue to them in my early days in the Province of Ontario. The root was gathered in the fall and sold to merchants, being ultimately exported to China, where it was said to be sold at a handsome price.

The name is given to two species, ours being the Aralia quinquefolia, or, as it is sometimes called, the Panax quinquefolius, the only kind I have seen in our back country, the other species being European, the Aralia (or Panax) Schinseng. A dwarf species, the Aralia trifolia, is sometimes found rather to the south of us.

The use of this plant as a cureall by the Chinese and Japanese goes very far back; and it is the purpose of this paper to indicate how it was considered by some of the European practitioners, more than two centuries ago. In a collection of medical pamphlets, large octavos, which I picked up some years ago, is a dissertation, apparently a graduating thesis in the Academy of Medicine of Leyden, bearing the title, which translated, reads: "Botanico-Medical Dissertation concerning the Root, Gin-Sem or Nisi and the Chrsanthemum Bidens Zeylanicum, called Acmella; with the Grace of God, and under the president, Frederic Dekkers, M.D., Professor of the Practice of Medicine in the Illustrious Academy of Medicine of Leyden, Rector Magnificus, John Phillip Breyn, son of James, submits to public trial on June 26th, at the accustomed hours in the morning and the accustomed place. Leyden: Published by Abraham Elzevier, Printer to the University, 1700."

Of the writer, nothing seems to be known, but Frederick Dekker is recognized as the discoverer of albumen in the urine (1). I give a translation of parts of the Dissertation, omitting some of the less important parts, including the "Prooimion". This most precious root, the true Panacea of the Chinese and Japanese, the first, so far as I know to leave us a description of, and that rather imperfectly, was Cl. Wormius, by the name 'Ninsing' (2). A little later, Gulielmus Piso somewhat more fully explained the virtues of this most health giving plant, giving it the name 'Ninzin'; and from him it was that Coryphaeus of botanists, John Rajus, took it into his *Universal History of Plants* and gave the names, ginsen and gensing (3). Others gave it the names "nising", "ginsem", "jinsom", or simply "som". This confusion of terminology renders it uncertain which name to apply; and there is no apparent reason why we should stick to the one rather than to another. Consequently I am minded to employ here the terminology (4) which James Golius, formerly a very celebrated professor of this university, received in the year 1643 along with a root from Japan, which he gave to my late father, James Breynius, and along with it, communicated the names he had received with the root. These were, with the Chinese, ninzy or gin-sem; with the Japanese, nisi. The Chinese name is interpreted by Gruber, a skilled interpreter of that language, as meaning "the birth of man", perhaps because, as we shall see later, it does much in that direction (5). That these last two are the genuine names, I confirm further by the Honourable Nicholas Witzen, ex-Consul at Amsterdam, who brought a sample with him by way of Russia from Japan and one from China with these names. He told me that it was so called either because it strengthened the human body and preserved it from manifold ills or because it had a shape, somewhat resembling a little man (homuncio), to the latter reason, Martinus, Kircher and Montzelius add their voice . . . (6).

"Having examined those who give an explanation of the name, now we are to consider the plant of which it is the root; and in this regard, the same variety occurs among the authors as in respect of the name. To examine and copy the opinions of all these authors, neither the limits of a dissertation nor my powers suffice. Wormius suspects, without reason, indeed, that it is a species of Eryngium; Rajus places it among the Umbelliferæ; Seselius, the leaves to the Aethiopicæ, the root to the Pastinacæ, which Robinson agrees is from a plant sent him by my father. True it is that, as Plukenetius says, from a communication to him from Robinson, it does not appear to be so, for the flowers seem to be monopetalous and three-cleft at the point, while the leaves are conjugate . . . . .

"Before dealing with the differentia worthy of notice of the plant itself, either neglected by all or inaccurately told, it seems necessary to state that two different plants come to us under the same name, the one a native of Corea and China, the other of Japan, the former being by far the best. Of this distinction my father was made certain by a certain friend of his living in Eastern India, sending him delineations of the leaves and roots. Proof is made of two kinds of roots, the one called Corean, ninzin, and the other Japanese, still lying in the Museum of my late father. The Corean grows in the northern part of Corea (which is a peninsula tributary to the Chinese kingdom), and especially at the northern foot of the mountains, and also, as witnesses worthy of credit informed Witzen, in China, near the Wall built to prevent invasion by the Tartars, as well as in Kin, the Eastern Tartary. It is also abundant in Coctung.

"This root, then, as it appears dried in our country,

resembles the Petroselinum rather than the Pastinaca (as others are pleased to think), but it is much less; it is a whitish yellow, inside and out, round, rugose, with many fine fissures, dark-colored (no doubt from the soil in which it grows), especially at the upper part of the dense circinate root; and like the mandragora, divided generally into two, but sometimes three branches, which you may call legs. If, as rarely happens, there are four, it looks rather like the four limbs of man rather than legs".

The author goes very fully into a description of the plant in its various varieties, and mentions the different names given to it. These I pass over. He continues:

"But sufficient has been said of the names, figure and differentia of this most wholesome plant. And now it is worthwhile to say something of its virtues and qualities; omitting what you will find in Piso and Martin and others, just one account will be given, which was told to my father by Golius, above mentioned. Transmitting the story of its virtues from Japan, it runs thus: 'It mundifies aqueous and thin blood, and restores it to its normal condition. It cures palpitations of the heart and insane affections of the mind. It corrects certain evils and defects of other medicaments. It exhilarates the spirits, heart and mind; it prolongs life and preserves it more than any other medicine. It strengthens the brain and memory. It disperses cloudiness of vision and removes illnesses of all kinds, even that which is caused by excessive venery. It increases the blood, removes lassitude of the body, corrects melancholy, excites the appetite, promotes perspiration, takes away vertigo and dimness of vision. It is helpful for syncoptics (i.e., those given to swooning), lipothymics (the same under a different name), paralytics, apoplectics, convulsives, epileptics, in stupor and contraction of the nerves, etc. So, too, with stomachics, hepatics and pneumonics. It renders the skin soft and delicate. It repels dryness of the skin. It empties the stomach replete with food. It represses vomiting, cures phlegmatic diseases, conquers fevers and strangury; checks spitting of blood as well as bloody dejections *per alvum*. It strengthens the parturient, as well in parturition itself as subsequently. In fine, it is to be held for the consummate remedy for the cure of all kinds of diseases, the conservation of all who are sick of any disease. There is to be taken of it, two or three times a day, the size of a large pea". Of all this, the author, not without reason says; "Which, perhaps, sounds somewhat boastful, and savours rather of the travelling quack ("Circumforaneus", the quack who goes around from fair to fair, vaunting and selling his wares), than of the phyician, and I shall not stop to enquire if it is all true, though I have no doubt of much of it".

We see, in what follows, the natural sense of the scientist overcoming the shackles of socalled reason, ratio, theory founded upon too feeble a foundation, which was the bane of medicine from the times of Hippocrates, a ratio, which declared the empiric, the experimenter, the judger by result an inferior, the true physician being he who had a mass of theory, ratio, and judged everything by that. The empiric was the quack and the name sticks.

The author goes on:

"If there is room for experience anywhere, it is surely in that part of the machaonic art, which deals with the faculties of medicaments. Beyond any doubt certain general qualities may be discerned by reasoning from analogy, say from the taste and odor; the medicament is heating, cooling, moistening, drying, etc., yet all of these have their basis on experience. But of specifics there is no certainty of determining the qualities in that way. Who would tell me, for example, that rhubarb had the power to purse, unless he knew by repeated experience? Or whether it would be more or less advantageous in this or that disease? Let us use the same method in respect of other medicines. Let us see, then, how far we can get by ratio, experience not contradicting. Where this deserts us, let us betake ourselves to the true instructress. From the taste described above, I gather that this root abounds in volatile oil, interspersed with oily or resinous particles, pleasant to the taste. At the same time it is by nature hot, but most temperately so, dry and somewhat tasty, consequently with a great analogy with our natural heat and so useful in all diseases which are due to a frigid or wet cause . . . and then by cutting into, attenuating, carrying away obstructions, to be effective in strengthening the powers.

"And now I hasten to the manifold virtues proved by repeated experience . . . of which the most effective are the following: 1. It assists the first digestion by healing the weakness of the stomach, especially if the cause is lack of spirits and frigid temperies—in this case, advantageously joined with Anisum stellatum (i.e., the star-anise, Chinese anise, Illicium anizatum). 2. It is never sufficiently praised as a cardiac, for it conserves the powers, restores what are lost in a manner passing belief by increasing and strengthening the animal spirits; extremely useful in and after difficult parturition, syncope, palpitation of the heart, etc. 3. It wonderfully helps the nerves. Quoting Dekker, tincture or extract with spirit. vin. rectif. furnishes an instantaneous remedy in the colic passion especially if accompanied by syncope or fainting . . . with the greatest success administered also in convulsions, syncope, to children from six grains to one-half scruple given in mass; after epileptic movements and after convulsion in adults to one-half drachm. 4. It is more efficacious than any other medicine as an aphrodisiac. It stimulates both sexes by increasing the natural heat, by increasing the secretion of animal spirits and semen, so it removes sterility particularly if it flows from defect of semen or spirits. It also increases the pleasure of coitus and stimulates erection of the penis, especially if the fossa and venereal antrum are anointed with balsam of mecha before coitus 5. It removes all obstructions originating in viscidity. It attenuates viscid blood and, to put everything in a nutshell, it is Poluchreston" (i.e., very useful for many things).

"By some the use of it is prohibited to the young of bilious temperament. The Chinese and the Japanese for the most part use this root in decoctions with other simples added. It is, however, sometimes given in mass, or in very hot water, one-half dram or two scruples.

"These, then, are the particulars I had in mind to communicate to you that I might be as a stimulus to you, so that you would enquire more fully into the use and powers of this root. It is to be desired that a greater quantity should be sent us from China, so

Pars superat coepti: pars est exhausta, laboris,
Hic teneat Nostras anchora jacta rates".

Notes

1. See Bass's *Outlines of the History of Medicine and the Medical Profession*. American edition by H. E. Handerson, M.A., M.D., New York, J. H. Vail & Co., 1889, p. 494. Dekker lived 1648-1730. The "Rector Magnificus" was the presiding officer of a University, not unlike our Chancellor.

2. This "Wormius" was Olaus Worm, a very learned Danish physician (1588-1654) who studied in Denmark, Strasburg, Basel, Italy, France, Holland and England. He was successively professor of belles-lettres, Greek and physic in the University of Copenhagen, these positions not preventing him from practising his profession and becoming a fashionable physician, employed by the King and Court of Denmark. Perhaps his activities were stimulated by the recorded fact that his three wives gave him sixteen children. He published many works in Hafnia, i.e., Copenhagen. The Ossa Wormiana, the Wormian Bones, are called after him. That he gave a description of them is true, but it would appear that they had been mentioned before him by Andernach, a physician of Strasburg. These bonelets are sometimes observable in the sutures of the cranium, their size being variable and their shape irregular. See Bass, *op. cit.* p. 531. Dunglison: *Medical Lexicon*, p. 1124. The Piso is William Piso. See Bass, *op. cit.*, pp. 508, 544, n.l.

3. This John Rajus (or Raius, "i" and "j" being interchangeable in those days in type as in chirography, as were "u" and "v") was John Ray or Wray (1627-1705), an English naturalist, born at Black Netley, near Braintree in Essex, and educated at Cambridge. He made many botanical tours through England, and in 1662 undertook with Willoughby a systematic description of the whole organic world, he taking the plants. In consequence of Willoughby's death this project failed, but in 1682, he published his *Methodus Plantarum Nova*, and later other works on botany, etc., not omitting religion. He won the enthusiastic praises of Haller and Linnaeus, and quite deserves the title given him on this dissertation.

4. The word I translate "terminology" is printed in Greek type, "Onomatologia", properly "a collection of words"; it is unknown to classical Greek, but is found in the mediaeval writers, though unknown to DuCange.

General Note

In reading these old dissertations, there must always be borne in mind the curious theories as to humors and spirits. There were four humors, the preponderance of any one of which determined the temperament of the individual—blood, bile, or yellow bile secreted by the liver, phlegm, rheum or pituita, generally considered as secreted by the brain, and melanchole or black bile, secreted by the spleen. Excess of these would produce the sanguine, the bilious, the phlegmatic, or the melancholic temperament. An incorrect proportion would produce a distemper.

There were generally considered to be three spirits—natural spirits produced in the liver, sent on to the heart, where they were made into vital spirits, then to the brain, where they became animal spirits and were sent throughout the body.

Of the authors named the only one that has earned a place in Bass's comprehensive work is the famous Jesuit, Athanasius Kircher (1598-1620), who anticipated the Darwinian "struggle for existence" and found in the microscopic organisms "worms", such as he found in pus, blood, etc., the cause of infectious diseases, especially the plague. He also practised hypnotism on animals. Bass, *op. cit.*, p. 510.

SOUTHERN CALIFORNIA MEDICINE

JOHN WILLIAM SHUMAN, SR.
Los Angeles, Calif.

(*Concluded from page* 187)

Society Business

While many matters of business are usually handled under the reports by committees, the main part of a medical society's business comes after the scientific program is over when all members are smoked out, weary, and heavy laden. At such a time a motion to adjourn is always in order, the business of the association is then dispatched more quickly and with less wrangling and debating. Doctors have the reputation of being poor business men; possibly this is where that reputation started.

The Southern California Medical Association had its origin in the Los Angeles County Medical Society (April, 1888) when Cochran, Brainerd, and Davis were appointed by the Chair to bring about such an organization, the reason given for the new association being "That the State medical society was really a Northern society." The Southern California Medical Society held its meeting of organization at the Hollenbeck Hotel on June 8, with eighty regular doctors present as members.

An eastern doctor recently remarked (1924) after attending a meeting of the Southern California Medical Association, "It is a live association and it seems as though all who appeared on the program were on the Staff of the Los Angeles County Hospital."

The county association was having difficulty in finding a place for meeting when Doctor MacGowan reported they had too large an attendance for any doctor's office and that he was making diligent search for a place of meeting but as yet no definite place was fixed upon. He suggested the court room. The subject was tabled!

The slogan, "Own a home of your own", was used by the association many years and at many of its meetings.

The homeopathic physicians, following in the footsteps of their regular brethren, organized into an organization (1885) with their pioneer Dr. A. S. Short

(came in 1873) as its president. Eighteen members signed up. In 1889 they had thirty and in 1906 forty members. Whilst the Homeos call Doctor Short their nestor, Doctor Manuel Fernandez, who was a Homeopath, came to practice in Los Angeles in 1874, and had already practiced four years in San Francisco. He was a Castilian from the capital of Spain.

The earliest dental practitioner was James S. Crawford, of San Francisco, who after spending the winters of 1863, 1864 and 1865 in Los Angeles, located here in 1866. The summers had become too attractive to withstand! The Southern California Dental Association organized in November 19, 1885, with Doctor Crawford as its first president.

Adjournment

Because the motion for adjournment is always in order, the same is made here, and passed. Afterwards is when good fellows get together and tell the truth.

The following is a discussion of Southern California medicine during the gay nineties and naughty naughts, by that native Californian of Spanish origin, Alfred J. Murrieta, associate professor of surgery (proctology) and who was graduated from the School of Medicine of the University of Southern California in 1899.

The business and professional life of Los Angeles in the early eighties was situated between the Plaza and Temple Street.

Henry Worthington, M.D., who signed as a member of the original medical society in January, 1876, was called to Temecula, California, about one hundred miles south of Los Angeles on the inland route to San Diego, and on the thirtieth, delivered Alfred John Murrieta. He lived at the ranch house for some months thereafter, to be sure his patients had normally recovered. A modest, quiet-spoken, genteel little man, his specialty, gynecology and obstetrics, the first to practice this specialty in Los Angeles.

About seven years later, in 1882, the discusser was sent to Los Angeles to live in the family of this much beloved medico on Bridge Street in Boyle Heights until about two years later, when the family moved from Temecula to 765 College Street, on the adjoining acre of property of Henry Worthington, whose office was in the Temple Block at the junction of Spring and Main Streets. In seeking relief for asthma, his residence was moved to various parts of the city and Alhambra. His last residence was on South Grand Avenue near Adams, which was then out in the country, for his affliction, which caused his demise in the early part of 1893 or '94.

Dr. Joseph Kurtz probably saved my life during my sojourn in the family of Doctor Worthington, diagnosed my very sore throat, diphtheria, the treatment heroic but effective; a rag tied on a stick and the throat swabbed with coal oil, C.P., several times daily.

Pioneer Drug Stores

A history of early medicine in Los Angeles would hardly be complete without mention of the two pioneer drug stores in which only drugs could be purchased. The C. F. Heinzman Drug Store was on the east side of Main Street, opposite Temple Street. Mr. Heinzeman, called Doctor, was a short, heavy-set man with a deep booming voice that easily carried outdoors. When Mrs. Morales or Mrs. Jones whispered in his ear that a purchase of cascara was desired, "Ach," boomed Doctor Heinzeman, "Mrs. Morales (or Mrs. Jones), schure, three ounces of cascara for the constipation, very fine, very fine",—nor did this broadcasting detract one whit from his popularity.

Viole & Lopizich's Drug Store was situated on the west side of Main Street near the Plaza. Mr. Viole was the father of the present Doctor Pierre Viole, the eminent otolaryngologist.

Arma Virumque Cano

I sing of the man, Dr. Granville MacGowan, who was graduated from the University of Pennsylvania in 1879, post graduated at Berlin, 1880, Vienna 1882, Paris 1883, and who came to Los Angeles and opened his office in the Baker Block. His specialty, which he had studied on the continent, was dermatology and syphilology. As the town grew south he moved to the Burdick, the Douglas Building, Third and Spring, the Brack Shops, West Seventh Street and finally to the Pellissier Building at Wilshire and Western. I sing of the arms of this man, a cultured gentleman, with a culture that was inborn, that no European sojourn was necessary to bring out. Ever a student, a subscriber to the best German and French journals, which languages he spoke fluently. It was probably this reading that urged him to give the first spinal anesthesia in Los Angeles and later he was the first to administer Salvarsan. A sharp mind, a bright, sometimes sarcastic but kindly wit, painted a vivid and impressive picture to his listeners. A bristly moustache, a keen, penetrating glance, gave him a rather fearsome appearance and camouflaged an all too kindly heart. His patient was his first interest, not only his very apparent condition but most carefully he searched for any other pathology that might have a bearing on his original condition. A searcher for knowledge and truths far in advance of his confreres. One could go on endlessly praising such a man for such a one passes this way but once, there were no others.

It was my privilege to be his first assistant from 1900 to 1903, Ralph Williams being his associate. I learned many things of which I have tried to tell you a few. How fitting Anthony spoke: "His life was gentle and the elements so mixed in him that nature might stand and say to all the world, 'This was a man'."

The following tabulation of Southern California County Medical Associations was prepared by Emma Pope, M.D., July 1926:

Organization Data re Southern California County Medical Societies

NAME	ADMITTED TO MEMBERSHIP	PRESIDENT	SECRETARY
1. Imperial	Oct. 27, 1906		
2. Kern	Jan. 6, 1904	T. W. Helm	Wm. S. Fowler
3. L. Angeles	Apr. 16, 1903	Rose T. Bullard	S. G. Stivers
4. Orange	Apr. 16, 1903	Wm. Freeman	H. S. Gordon
5. Riverside	Apr. 16, 1903	Louise H. Clark	W. W. Robler
6. San Bernardino	Apr. 16, 1903	W. Thompson	J. H. Meyer
7. San Diego	Apr. 16, 1903	R. L. Doig	T. L. Magee
8. San Joaquin	Apr. 16, 1903	S. E. Latta	W. S. Snediger
9. San Luis Obispo	Nov. 16, 1903	J. S. Jackson	E. A. Dial
10. Santa Barbara	Apr. 16, 1903	Chas. Anderson	W. B. Cunnane
11. Tulare	Apr. 1, 1911	A. L. Wilson	T. J. Patterson

Book Reviews

The Mayos

The Doctors Mayo. By HELEN B. CLAPESATTLE. Minneapolis: University of Minnesota Press, 1941. Pp. 712. Price, $3.75.

The life of the Mayos trace the growth of the men and their institution from the time the first Mayo came to the United States in 1845 to the present day organization of universal renown. It is a remarkable biography, not only of an immigrant doctor, who found a great place for himself and his sons in this land of opportunity, but the book is an historical interpretation of the progressive development of medicine and surgery in this country viewed from the Mayo Clinic as a nucleus. The roving, adventurous nature of the first Mayo is an astounding revelation of the forces of discontent that led him to seek new outlets for his diverse abilities. This same ingenuity dedicated to a single cause gradually became the shrine of a great institution. Marked is the contrast between the two generations, not only in method and purpose but in ethics and ideals. Each step in the evolution of the Mayos is considered in relation to the spirit of the times, the attitude toward medicine, the facilities for practice, the demands of the public and the adequacy of the profession. The whole phenomenon of the Mayo Clinic unravels like that of any of the great institutions and industries in this country for the technique of their upbuilding has been exactly the same within the past three generations.

The book is replete with personal anecdotes, quotations, and comments upon the personalities of those who have participated in the work of the institution. Surprisingly enough it reveals the good and the bad sides of the family in all their dealings and thus makes a poignant medical biography an outstanding contribution to the last century of medical progress.

Developmental Diagnosis

Developmental Diagnosis. By ARNOLD GESELL, M.D., and CATHERINE S. AMATRUDA, M.D. With twenty illustrations. New York: Paul B. Hoeber, Inc., 1941. Pp. 447. Price, $6.50.

This book is the outgrowth of years of activity dedicated to the quantitative aspects of child growth and development. At first the work involved measurements of norms for each age level but gradually they became orientations for the diagnosis of developmental disturbances in infants and young children. Observations of normal behavior threw the light on maldevelopment and the deviations of development helped to expose what lay beneath the deceptive layer of obviousness in normal infancy. The book thus indicates an identity of developmental processes which determine the relation patterns of the intact and the defective child, the well endowed and the partially endowed and those blemished by injury and disease. A comprehensive outline of normal development is illustrated by phototracings based on cinema records. This constitutes the basis of diagnostic procedures for the early recognition of developmental deviations.

The book is clinical without elaboration of academic theory. Part one outlines the basic principles and methods and affords a panoramic view of early development. It integrates developmental tests, behavior characteristics and growth trends of the behavior pattern from four weeks to three years of life. Part two is concerned with defects and deviations of development interpreted in terms of normal criteria. Basic attention is given to the problem of amentia because of its prime importance in differential diagnosis. Part three deals with methods of protecting early development through private practice and public health measures. The end of the book is virtually a condensed manual of directions for various developmental tests in everyday practice. In its entirety this work is the first of its kind to give the practitioner quantitative measures for the evaluation of defective children.

Fear and Fatigue

Don't Be Afraid! How to Get Rid of Fear and Fatigue. By EDWARD SPENCER COWLES, M.D., director of the Park Avenue Hospital, New York. Foreword by MAURICE MAETERLINCK. New York and London: Whittlesey House, McGraw-Hill Book Company, Inc., 1941. Pp. 229. Price, $2.75.

This book is the outgrowth of experience with pathological personalities in the recently formed Body and Mind Clinic. After a preliminary discussion of how feelings arise, how nerve cell energy accumulates, the author proceeds to a consideration of fatigue as an underlying factor of fear. All forms of fear are tracked down, for fear in its various aspects is considered a source of many mental disorders, as claustrophobia, agoraphobia, zoophobia, sitiophobia, mythophobia and so on. While every being lives in fear of something it becomes manifest only when the energy of the nerve cell is exhausted. The book is, therefore, based on a theory of nerve cell energy which is purely hypothetical and has never been confirmed experimentally. In fact, experiments directed at the discovery of energy consumption involving emotional or mental strain have failed to reveal any such metabolic alteration. It has, however, been demonstrated that removal of mental stress alleviates fatigue as if by magic in the shortest possible time. The cure is sometimes so rapid that one is tempted to wonder whether there has been not only no central nervous fatigue in the sense of depleted energy reserves but whether there has been any fatigue at all even in the peripheral nervous system. The subjective sensations represent a melee of mental disorders not yet unraveled in fatigue laboratories.

Nutrition

Essentials of Nutrition. By HENRY C. SHERMAN and CAROLINE SHERMAN LANFORD, Columbia University, New York. With thirty-four illustrations. New York: Macmillan Company, 1940. Pp. 418. Price, $3.50.

This book offers an adequate and up-to-date view of our newer knowledge of nutrition. It assumes no prerequisite training in science and is, therefore, intended for college students. Application to the underlying principles is mainly directed at relation of food to health and efficiency. Chief prominence is given to young persons pursuing the subject although some chapters are devoted to the provision of food for the family. After a preliminary presentation of the position of nutritional science in the scheme of life the authors consider proteins, minerals and vitamins in the classical manner. Each chapter summarizes recent advances in the field in elementary fashion and presents appropriate

references that now constitute the historical basis of the subject matter. Some consideration is given to application of nutritional knowledge to everyday life, that is, relation of food to teeth, to health, to efficiency as well as to food economy.

Everyday Science

Science and Everyday Life. By J. B. S. HALDANE, F.R.S., Professor of Biochemistry in the University of London. New York: Macmillan Company, 1940.

This book contains seventy articles dealing with various aspects of science. Such diverse subjects as meals; round the year; stars, including the earth; mathematics and physics; evolution and its products; bad air; medicine and society; food; drugs; heredity; science and society attest to the simplicity of the discussions. Each article gives a few facts not found in textbooks yet they are clearly brought into relation with everyday life. The author stresses that knowledge of science is indispensable for the maintenance of democracy because scientific discoveries affect our lives continuously.

Nutritional Deficiencies

Nutritional Deficiencies. Diagnosis and Treatment. By JOHN B. YOUMANS, A.B., M.S., M.D., associate professor of medicine and director of postgraduate instruction, Vanderbilt University Medical School, Nashville, Tennessee. Assisted by E. WHITE PATTON, M.D. Sixteen illustrations. Philadelphia, Montreal and London: J. B. Lippincott Company, 1941. Pp. 385. Price $5.00.

Rapid progress has increased our knowledge of the clinical manifestations and management of nutritional deficiencies. Nutritional information is scattered, the data confused, the conclusions difficult of interpretation. This book, therefore, finds an appropriate place for the practitioner since it unravels vitamin, mineral and protein deficiencies commonly encountered. After a preliminary discussion of the nature and function of the various food factors the clinical presentation of distinct entities are given in great detail. These are correlated with laboratory tests indispensable for diagnostic corroboration. In view of wartime rationing this monograph is especially opportune.

Nutrition Primer

America's Nutrition Primer. What to Eat and Why. By ELEANORA SENSE. Introduction by DR. E. V. MCCOLLUM. Illustrated by the author. New York: M. Barrows and Company, Inc., 1941. Pp. 95. Price $1.00.

The science of nutrition has been illuminated by so much research in this generation that it becomes most difficult for the average citizen to reap the benefits of these advances. The most important application of this knowledge must be made by women in the home. They make the selections and prepare daily menus for the family. In both medical and popular literature there is increasing emphasis on the importance of nutrition for the preservation of health. Fortunately it is not necessary to become proficient in the technical knowledge of foods and nutrition in order to make practical application of this newer knowledge. This book presents the viewpoint of the housewife in her language. It is an excellent little guide devoid of technical terms and gives methods of marketing, preparation, and combination for each meal.

Critique

How's the Food Supply?

Many people wonder what to hoard today; many have already hoarded sugar and other commodities. Insofar as agricultural production is concerned the revised 1942 farm-production goals announced by Secretary of Agriculture Wickard on January 16 are intended to stimulate the greatest production of farm commodities on record. Contrary to opinion in some quarters farm production was not lower in the past several years than before the New Deal. Actually 1940 was an all-time high for farm production, 1941 topped that, and 1942 must do a great deal better still. In a broad way the 1942 goals represent an average farm production nineteen percent above the average annual production in the period 1935-39, whereas farm production in 1941 topped the period mentioned by only thirteen percent. Omitting the nonfood crops, cotton and tobacco, and the food crop wheat, which is to be curtailed eighty-eight percent, from consideration, we plan to produce twenty-five percent more than we did annually in the period 1935-39 whereas in 1941 we produced only sixteen percent more. There are all sorts of new loans and price supports to stimulate the production of precisely the kind of things we require in increased quantities—sugar crops, fats and oil, hog meat and lard, evaporated and dried milk, cheese and eggs, dried beans and dried peas. We definitely plan to have in 1942 at least forty-five percent more canned vegetables than in the 1935-39 period, most of the increase being in peas and tomatoes. The tin has been allocated to cover essential perishable foods though it will be withdrawn from many foods that do not absolutely require to be tinned, such as dog food, biscuits, petroleum products, tobacco, baking powder, beer and so on. The 1942 vegetable pack should run at least one-fifth above that for 1941, or fourteen million additional cases.

There is considerable stimulation all along the line too—of farm and home garden making, and of market gardening and commercial truck gardening. In a general way the goals set up may be regarded as floors, rather than ceilings. Farm production is expected to exceed rather than merely to achieve all of them except those for tobacco and cotton. True, there will be difficulties. The farmer like the manufacturer uses metals, rubber, and other scarce commodities. He faces shortages of burlap, fertilizers, and insecticides. But a great farm-machinery repair campaign is already on and another for the collection of scrap iron from farms is under way—and there is said to be enough scrap iron on American farms to make as many battleships as are now afloat in the world, when mixed with the proper amount of new iron. Special allocations have been made of steel for use in repairing farm machinery and also in making increased numbers of specified machines like peanut pickers which will be needed in larger quantities than ever. Farmers also are being aided by Federal employment offices in getting sufficient labor for their needs.

It is true that the armed forces and our allies will require considerable food from us. But efforts are being made to purchase lend-lease food with as little disturbance to civilian requirements as possible; the

same thing may be said about food for the armed forces, with the added reminder that these men would eat at home as civilians if they were not in uniform, hence they simply form a new consumer grouping not a group of altogether new consumers. Rationing of sugar and certain other foods will be necessary in the main because of the tendency to hoard. If the American people could resist the impulse to hoard it is quite possible that fair allocations could be made to provide sufficient food for all needs, domestic and among the armed forces and the United Nations. But since hoarding has set in, rationing, however distasteful, becomes necessary so that we may all share alike.

Protein Intoxication In the *Medical Journal and Record* for November 7, 1928, Henry J. Bartle wrote on this subject saying that in such cases "the taking of bran, whole wheat bread, graham bread, pep, shredded wheat biscuit, and other food containing bran, even in part, in a general way is condemned." Bartle recommended a bland diet and was down on roughage. He claimed that not one in ten derived lasting benefit from bran. He had also found yeast sadly disappointing and could not understand why notable medical men recommended it. Cellulose material he also felt was no good in such cases and he advised no caffeine or laxatives other than fruit paste with senna and agar or phenolax. He would limit liquids very severely and would permit none at all two hours after and half hour before eating.

Fair Business An editorial in the *Medical Journal and Record* for November 7, 1928, (p. 480) said: "The layman is rapidly coming to the conclusion that when he goes to the doctor, he is sometimes required to spend money for things which he does not need. He is particularly resentful of the way that he is sometimes peddled around among specialists to secure opinions which have only a remote bearing on the ailment from which he is suffering. Another phase of this objection is the requirement of laboratory procedures which are not really essential to accurate diagnosis and treatment. The layman knows that some of these things are needed but he requires showing to be convinced that some of the things which are done are not for the purpose of paying the technician or of giving the pathologist the chance of a fee. The irregulars have been quick to grasp this piece of business psychology and this is one reason why they are successful. After all, the average physician practices medicine for the purpose of gaining a livelihood and he will do well to remember that the reputation for fair business dealing with his clientele forms a large part of the good will in his business. The moral is that the patient should not be required to expend money unnecessarily and that, with intelligence and care, the physician should choose the laboratory procedures which are going to cost the patient money, limiting them to the useful and needful." How does that tie in with the suggestion made by Dr. Maxmillian R. Ramirez, president of the Medical Society of the County of New York, on January 26, 1941, that fee splitting be avowed, the patient be told all about the custom, and permitted to understand the inability of the medical association to eradicate it? Dr. Ramirez said that many doctors split fees from economic necessity and that this hush-hush business about the practice had gone on long enough. Patients should be let in on the secret; they should be permitted to know exactly where their money goes; a committee was to be appointed to study and report on this matter. But the medical society said *nix*.

Corpus Luteum Dr. John T. King, Sr., concluded an article in the *J.A.M.A.* for November 10, 1928, by saying: "Corpus luteum and whole ovary by mouth and follicular extract subcutaneously are probably useless in the relief of symptoms of the menopause." He said that corpus luteum did not raise a low metabolic rate sufficiently to merit use, and that neither fresh whole gland nor follicular extract had any effect on metabolism either.

The "Dirty Germans" William P. Cunningham, M.D., wrote thus in a purportedly scientific article in *American Medicine* for October 1920: "To the massacres and the ravishings and the merciless executions they (Germans and Russian Reds) added one distinguishing horror of their own, namely, that of killing and maiming babies . . . The scourge of justice in the hands of the victorious Allies must leave welts upon the hide of the Teutonic beast that will effectually cow him not only to the third and fourth generation, but as long as the memory of man runneth not to the contrary. That (to reduce the legal phrase to everyday English) means as long as memory lasts. As the memory of society is its prescribed records the chastisement needs be extremely severe to produce this salutary result. . . It behooves us to mark the German protoplasm with the ineffable dread of the wages of sin." And so what? Look at the world now? Does hate help?

Old Men Fathers Harvey W. Wiley became a father twice after his marriage at sixty-six. Dr. Lyon G. Tyler, son of John Tyler, tenth President of the United States, became the father of another son at seventy-six on November 9, 1928. Dr. Robert Horton, noted British Congregational leader, became a father at seventy-three on November 6th the same year. As Munyon said: There is hope!

Nutrition Habits of Primitives Some years ago a friend of the Critic's who had lived both in Africa and in Tahiti wrote him that Africans will be gluttons on meat if they can get it, but never on starch foods. They do not work off big meals but go to sleep after them. After the sleep they will work uncomplainingly a long time, living on moderate rations, provided they can reasonably hope for another gorge soon after. There seemed to be little constipation among these people, though they did suffer from "myoka" or snake-in-stomach, when they ate regularly, as they were expected to do at missions. In the bush they ate irregularly, naturally, and perhaps less as a whole. Castor oil or salts always cured their "snake". Tahitians also have occasional digestive troubles. They eat plentifully but not gluttonously. They do not suffer from times of hunger and times of plenty as food is always available. They can always get fish, starchy foods, and fruit. They live rather active lives, or did in the old days when they could fight and dance at will.

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We would appreciate any items of current interest which our readers may send in.

WEDNESDAY, MARCH 18, 1942

Medicolegal Notes

Disposition of Hospital Bequest

A will merely provided for the establishment of a hospital "for the use of the public without gain or profit," but made no requirement for a general hospital. There existed a public hospital operated upon a charity basis and within the provisions of the will, although it was a hospital for treatment of tuberculous patients. The selection of this hospital by the trustees under the will was held not to be an improper diversion of the funds. Noble vs. First Nat. Bank of Anniston, Alabama Supreme Court, 1 So. 2d 289.

"Practicing Medicine" by X Ray Technician

X-ray treatment administered by an x ray technician at a hospital is held by the New York Supreme Court, Special Term, New York County, to constitute practicing medicine within the definition of that term contained in subdivision 7 of section 1250 of the New York Education Law. It was therefore held that the two year malpractice statute of limitations and not the three year negligence statute applied to a cause of action for the injuries caused by the defendant's negligent administration of the treatment. The plaintiff's complaint was accordingly dismissed, with leave to serve an amended complaint for such damages as plaintiff might recover on the theory of breach of contract.

The court followed a similar case in the Appellate Division, Monahin vs. Devinny, 223 App. Div. 547, 229 N. Y. S. 60, where it was held that negligent treatment by a chiropractor, not licensed to practice medicine, came within the definition of practicing medicine contained in the said subdivision 7 of section 1250 of the Education Law, and that therefore the two year malpractice statute, Civil Practice Act, section 50, subd. 1, applied. Leitch vs. Mulcahy, 31 N. Y. S. 2d 874.

Compensable Injury in Lifting Patient

A nurse who, while helping to lift a patient, suffered rupture of the lumbrosacral intervertebral disc, with impingement of nerve and muscle spasm, received a compensable injury under a nurses' special insurance policy covering "accidental bodily injuries," the Fifth Circuit Court of Appeals holds, Inter-Ocean Casualty Co. vs. Brockman, 123 F 2d 1006, affirming judgment for plaintiff in an action on the policy in the Federal District Court for northern Texas.

The court cited cases of rupture of the heart or blood vessels in lifting a bale of cotton, a back injury resulting from the lowering of a cube of ice into an ice box, and rupture of a stomach ulcer while lifting a sack of flour as constituting accidental injuries.

Hospital Nurses' Answer in Insurance Application Held Proper

In an action by a life insurance company to rescind a policy issued by plaintiff on the life of a hospital nurse on January 27, 1938, cancellation of the policy was sought on the ground that the insured, in her application for the policy, falsely answered in the negative the questions: "Have you ever been an inmate of any hospital?" and as to what physicians she had consulted during the past three years and for what.

During her employment insured was examined at different times by medical members of the hospital staff, including x ray examinations. For five days in February, 1937, she was confined in a hospital ward, under the care of a member of the staff, who testified that she had a "cold and sore throat", which he also testified was a "very trivial sickness."

When the policy was issued the insurance company's doctor made a careful physical examination of insured, including her lungs. He testified that he found no evidence of tuberculosis. That disease was subsequently first diagnosed in May, 1938, and caused her death April 29, 1939.

The New York Supreme Court, Albany County, Farmers and Traders Life Ins. Co. vs. Dalheim, 24 N. Y. S. 2d 89, held that the hospital examinations and confinement of the insured in a ward or room in the hospital were not within the contemplation of the questions asked. At any rate, the court added, the insured had a right so to assume, and the questions were, for that reason, not improperly answered. The complaint was therefore dismissed and judgment rendered for the defendant beneficiary on her counterclaim for the amount due on the policy.